

Apple hopping on industry-standard bus for PowerPC

By Henry Norr

Atlanta — Apple, which has been riding the NuBus for the past six years, will take a new and faster bus into the age of the PowerPC.

And while the company turned out to be almost alone on the NuBus, most of its leading personal computing competitors are lining up to get aboard its new choice, the Peripheral Component Interconnect (PCI) Local Bus specification.

Apple announced its support for PCI, a high-performance expansion-bus standard originally proposed by Intel Corp. last June, at last week's

See PCI, Page 95

New high-res LaserWriters to offer fast Level 2 output

Windows util, SNMP, PostScript fax in cards

By Matthew Rothenberg

Cupertino, Calif. — Apple reportedly will push the envelope of its LaserWriter Select and Pro laser printer lines this summer with a trio of fast, high-resolution models.

The LaserWriter Select 360 and LaserWriter Pro 800 and 810 models will be the first Apple printers to offer an optional card to receive PostScript and Group 3 faxes, sources said. The printers are tenta-

tively slated for August's Macworld Expo in Boston, sources said. Pricing has not been set.

The new models will be the first to ship with Apple's LaserWriter Utility program for Windows, which will let users of IBM PCs and compatibles name and customize their printers. The utility will also work with the Personal LaserWriter NTR, the LaserWriter IIg and the Pro 600 series.

► **The LaserWriter Select 360** is based on a new 600-dpi, 10-page-per-minute Fuji Xerox engine that outputs letter-, legal-, A4-, A5- and B5-size pages to paper or transparencies.

The Adobe PostScript Level 2 device will ship with 35 Type 1 fonts, sources said. The Select 360 will offer Apple's FinePrint resolution-enhancement software when printing at 300 dpi, but the compa-

See LaserWriters, Page 96

Rae to Assist users on the go

By Andrew Gore

Cupertino, Calif. — Rae Assist, a personal information manager due this summer from Rae Technology Inc., will be among the first of a new generation of "super PIMs" designed to bring much of the promised functionality of Newton to PowerBooks and other Macs.

The \$199 application's six modules — People, Companies, Planner, To Dos, Projects and Items (for free-form text and graphics) — provide an extensive but not unusual set of personal information manager (PIM) functions. The program offers a notebook-style interface,

See Assist, Page 94

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Title: Purchasing Department
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Custom Field 2: Call Tom 6/1/93, Meet Tom 6/2/93
To Dos: Events

With Rae Assist, all information pertaining to people in the system can be viewed from profiles, including what company they work for and appointments in their schedules.

Informix will bring database back end, tools to A/UX 3.0.1

By April Streeter

Menlo Park, Calif. — Informix Software Inc. last week bolstered Apple's plan to supply robust Unix-based servers to corporate customers by reversing a previous decision and announcing plans to offer its line of relational database products for A/UX 3.0.1.

While Version 4 of Informix's relational database software runs under A/UX 2.0, the company had not upgraded the back-end system for Version 3.0 of Apple's Unix implementation, which was released more than a year ago. The shift announced last week recognizes both A/UX's stability and the Apple Workgroup Server 95's viability as a database server platform, said A.J. Brown, Informix connectivity product manager.

See Informix, Page 96

LC 520 will enroll CDs in K-12 market

By Robert Hess

Cupertino, Calif. — Christmas will arrive in July this year for children in the United States when Apple introduces the newest member of its LC line of Macs, the LC 520.

The low-cost LC line, which has been most successful in the primary education market, has lacked only for a CD-ROM-equipped model. That's the niche Apple intends to fill with the LC 520, which will be available only in the K-12 market, sources said.

As previously reported, the new model integrates an LC III logic board and a 14-inch Sony Trinitron monitor in an all-in-one unit that resembles the Color Classic (see MacWEEK, Jan. 4). Like the LC III, the LC 520 is based on a 25-MHz 68030 with an optional FPU (floating-point unit). The 768

Kbytes of video RAM will support up to 16-bit color on the display.

Reflecting Apple's desire to make CD-ROM a standard feature of the Mac line, the LC 520 will ship with a Sony dual-speed CD-ROM player. Built into the Mac's display are

See LC 520, Page 96



An artist's conception of the LC 520.

June PowerBooks straddle low, high of price spectrum

By Jon Swartz

Cupertino, Calif. — Apple may be giving users what they want with new Macintosh PowerBooks on June 7, but industry observers are split on whether the prices are still too high to bust the PC logjam.

The PowerBook 145b, which

is functionally identical to the 145, will retail for \$1,649 in a 4/40 configuration and \$1,899 in a 4/80 model. The PowerBook 180c, an eight-bit-color, active-matrix version of the 180, will retail for \$4,159 in a 4/80 configuration, \$4,519 for a 4/160 model and \$4,769 for a 4/160 machine with the Apple Express Modem.

While some industry observers said the magic of the PowerBook name will translate into healthy sales, others argued user reaction may be tempered by a flood of inexpensive IBM PC and compatible notebooks on the market.

"This market seems to have a bottomless pit for prices. [They] keep eroding and eroding," said

See Pricing, Page 96

New PowerBook pricing

MODEL	RETAIL PRICE	DEALER PRICE
PowerBook 145b 4/40*	\$1,649	\$1,385
PowerBook 145b 4/80*	\$1,899	\$1,595
PowerBook 180c 4/80	\$4,159	\$3,494
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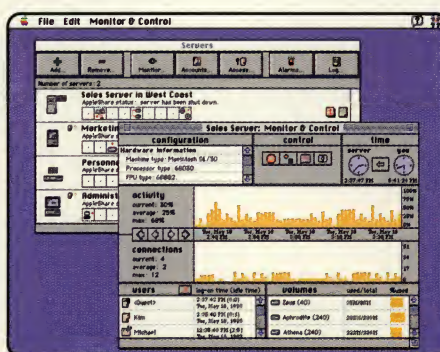
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Version 4.0 of Virex, Datawatch's anti-virus utility, offers, among other enhancements, a more colorful interface and a resizable main window.

Virex 4.0 update dispatched; net enhancements diluted

By Henry Norr

Durham, N.C. — Datawatch Corp.'s Triangle Software Division last week delivered Virex 4.0, but administrators who have been looking forward to the latest version of the anti-virus utility won't find some of the network innovations they may have expected.

The Virex Network Installer, a utility available free to site licensees and anyone purchasing multiple copies of the \$99.95 package, now lets users install the Virex applica-

tion and Virex INIT across the network from any shared volume; previously, it had to be on an AppleShare server. In addition, it can now install updated software even over locked copies of earlier versions. The network installer is included in Virex 4.0 10-PAKs, which list for \$699.

What's missing are several more-ambitious network features originally slated for Version 4.0. When the program's previous publisher, Microcom Inc., announced the update last summer, it said the new release would let administrators initiate scanning and repair on networked machines from their own desktops. The company also said the program, then scheduled for release last October, could be configured so new versions placed on a server would be installed automatically, without user intervention, on networked Macs (see MacWEEK, Aug. 3, 1992).

Enhancements that did make Version 4.0 include a new local installer that detects and repairs known infections before loading the Virex software. The package now comes with a start-up disk with System 6.0.7 and another with System 7.1 and system enablers for all Macs except the Duos. The Virex INIT can now detect infections in open files. Under System 7 the program offers drag-and-drop diagnosis and supports Apple events, so scans can be initiated by other programs or by scripts.

Participants in Datawatch's Annual Subscription program will get Virex 4.0 free; for others, upgrades are \$25.

Datawatch Corp.'s Triangle Software Division is at 3700-B Lyckan Parkway, Durham, N.C. 27707. Phone (919) 490-1277; fax (919) 490-6672. □

Novell to acquire Serius for \$17M

Provo, Utah — Novell Inc. announced last week that it has reached a definitive agreement to acquire Serius Corp., developer of point-and-click tools for building custom business applications for the Mac and Windows.

Novell said it will pay \$17.25 million to purchase the 89 percent of Serius stock it does not already own. The networking giant acquired an 11 percent stake in the privately held Serius in December 1991.

The deal, which is expected to be completed by July, gives Novell two application builders — Serius Workshop and Serius Developer Pro — plus a series of related software libraries for specific functions such as databases, communications and multimedia.

Serius, which has about 40 employees, was founded four years ago by Joseph P. Firmage. Now the company's CEO, he was then an undergraduate at the University of Utah. □

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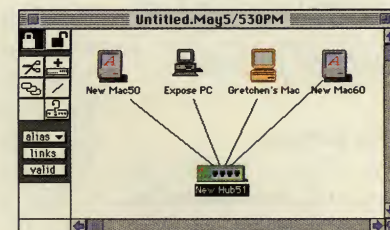
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PageBlaster gets fax capabilities

Device adds PostScript to variety of printers

By Matthew Rothenberg

Fremont, Calif. — Pacific Rim Data Sciences this month added fax capabilities and enhanced Mac connectivity to PageBlaster Universal, a hardware and software package that gives printers PostScript compatibility.

Like the original PageBlaster Universal, the new PageBlaster Universal FM consists of an external converter box and UltraScript Mac-Fax, a software RIP (raster image processor) based on QMS Inc.'s UltraScript PostScript interpreter.

The device receives rasterized pages from the Mac via SCSI and transfers them to the printer via an RS-422 serial interface or a Centronics parallel port at a rate of 200 Kbytes per second. The original

PageBlaster Universal lacked an RS-422 interface and transferred data to the printer at a rate of only 65 Kbytes per second (see MacWEEK, April 20, 1992).

In addition, users can connect the PageBlaster Universal FM to a fax modem to send and receive CCITT Group 3 and PostScript-compatible faxes; incoming faxes are printed at maximum resolution on the user's printer. The device ships with 1 Mbyte of buffer RAM that can hold as many as 30 faxed pages for output, the company said; RAM can be expanded to 4 Mbytes.

The UltraScript MacFax software automatically generates cover sheets and features a fax-activity log that lets users monitor the system's performance. It ships with 15 Type 1 fonts.

The PageBlaster Universal FM box and UltraScript MacFax program retail separately for \$395 and \$199, respectively; users can buy both for \$495. A bundle that includes 43 Type 1 fonts costs \$595. Options include a \$250 internal 2,400-bps modem, a \$100 manual A/B switch that lets an IBM PC or compatible and a Mac share the same printer, and a \$45 SCSI cable for Mac PowerBooks.

Pacific Rim Data Sciences is at 48531 Warm Springs Blvd., Suite 415, Fremont, Calif. 94539. Phone (510) 226-8930; fax (510) 226-8631. □

Kaleida forms group to promote, support ScriptX as new standard

By Lisa Picarille

Mountain View, Calif. — Attempting to establish ScriptX as a standard, Kaleida Labs Inc. last week formed an industry group to promote and support products based on the cross-platform multimedia development and playback technology.

The Kaleida Alliance, open to hardware vendors that license ScriptX, gives members priority access to ScriptX information for a three-year period. Kaleida declined to say whether members were required to pay a fee to join the alliance.

Charter members of The Kaleida Alliance include Apple, IBM Corp., Hitachi Ltd., Toshiba Corp., Mitsubishi Electric Corp. and Creative Technology Ltd. Each of these companies has announced multimedia devices that will support ScriptX.

Industry observers said the formation of the group appears to be a marketing ploy rather than an attempt to create a consortium that

governs the ScriptX specification.

Kaleida is expected to unveil a ScriptX developer-support program when ScriptX is formally announced at next month's Digital World conference in Beverly Hills, Calif. □

Extreme boosts Classic

Tukwila, Wash. — Color Classic users can upgrade their machines to run faster than a Mac IIci with a new accelerator from Extreme Systems.

The Impact 030/Color Classic, shipping this month for \$479, uses a 32-MHz 68030 processor to speed the Color Classic 200 percent to 300 percent, Extreme said. A \$569 version includes a floating-point coprocessor.

The Impact 030 module plugs directly into the Color Classic's processor direct slot without an adapter.

Extreme Systems is at 1050 Industry Drive, Tukwila, Wash. 98188. Phone (206) 575-2524; fax (206) 575-3928. □

DiskExpress II gets new flexibility

By Henry Norris

Spring, Texas — ALSoft Inc. this month released what it called a "significant upgrade" to DiskExpress II, its disk-optimization program.

Version 2.2 of the \$89.95 utility lets users set the day of the week as well as the time of day for automatic optimization. Under System 7 the new release can be configured to place the temporary file it uses to hold data during optimization in RAM, instead of on disk — an option ALSoft said could cut optimization time in half. A new Packed Optimization option is designed for users who frequently change the size of their disk partitions.

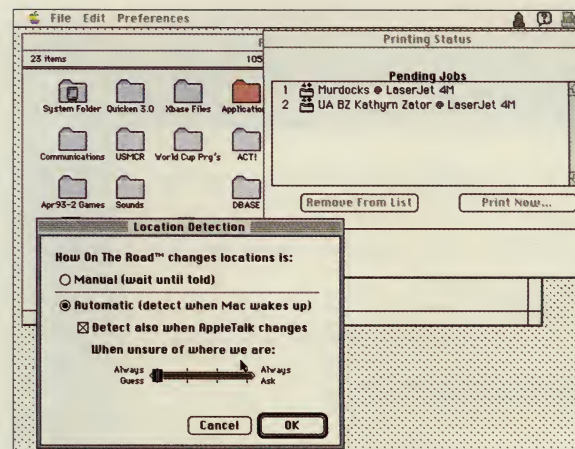
DiskExpress II 2.2 ships with Ver-

sion 1.20 of DiskChecker, ALSoft's disk-diagnostics utility. The new version identifies more hardware problems, including SCSI noise, and works up to five times faster than its predecessor, according to the company.

It also permits users to anchor any file (so it and others of the same type will not be moved during optimization) or unanchor files DiskExpress previously left in place.

Upgrades are \$15 through July 31. Users of other ALSoft products can get DiskExpress II 2.2 for \$35.

ALSoft Inc. is at 22557 Aldine Westfield, Suite 122, Spring, Texas 77373. Phone (713) 353-4090 or (800) 257-6381; fax (713) 353-9868. □



Palomar Software's On The Road PowerBook printing and communications utility, which can detect its location and select the appropriate printer, now adds support for Novell networks.

Palomar hits the road again with updated PowerBook utility

By Raines Cohen

Oceanside, Calif. — Palomar Software Inc. last week updated On The Road, adding support for Novell networks to the PowerBook printing and communications utility.

The \$99 program lets users print documents to disk when they are between locations; it automatically determines its location, selects the appropriate printer and prints the documents when the PowerBook is connected to a network.

It can also automatically transfer files by modem when the machine is connected to a phone line or mount server volumes and run specified applications when a Power-

Book is connected to a network.

Version 1.1 of the utility works with file servers from Novell Inc., including NetWare for Macintosh 4.0 and DataClub 3.0. It eliminates repetitive log-in procedures and selects printers while simplifying DataClub's virtual-server file sharing.

Other enhancements in the free update include support for Apple's new LaserWriter 8.0 Adobe PostScript Level 2 driver, the Apple Express Modem and the PowerBook 165c.

Palomar Software Inc. is at 2964 Oceanside Blvd., Suite D, Oceanside, Calif. 92054. Phone (619) 721-7000; fax (619) 721-4758. □

Jump makes Optimem use of Mac memory

Extension creates app memory 'pool'

By Robert Hess

Pittsburgh — All Mac users can remember innumerable times when they were forced to take control of their Mac's memory, quitting one application to make room for another or even restarting to make every last byte available.

Jump Development Group is preparing what it hopes will be a cure: Its Optimem system extension, due in September for \$129, keeps free memory on a Mac in a shared "pool" from which applications can borrow.

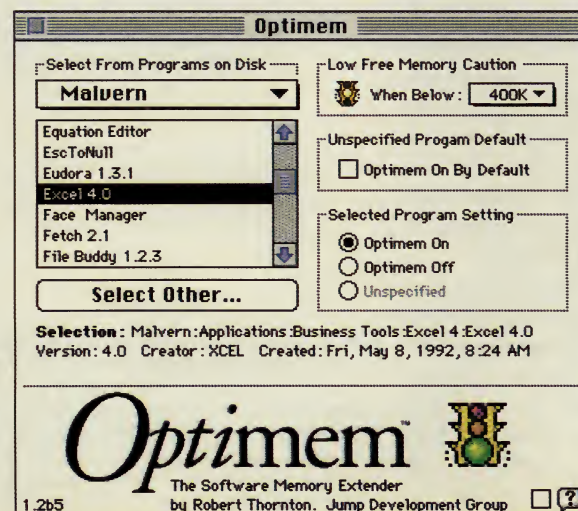
Under Optimem, applications are launched into their minimum size as indicated in the Finder's "Get Info" window, or in some cases even less. When an application needs more memory — to open a large docu-

ment, for example — Optimem convinces the application that it has at its disposal all memory in the pool. As far as the application is concerned, it is allocating a piece of its own memory as usual. When the user closes that document and the application releases the memory it occupied, Optimem returns the memory to the pool, where all applications may use it.

The advantage to this method, Jump said, is that applications become dynamic in their needs. Users will no longer need to size applications as large as the largest document they might need to open, and an application can grab more memory without the user quitting the application and adjusting its memory needs.

Optimem watches applications and learns their behavior in an effort to better predict their needs and guide their performance. It comes preconfigured with settings for popular applications such as Microsoft Word and Excel.

The extension requires System 7. Jump Development Group is at 1228 Malvern Ave., Pittsburgh, Pa. 15217. Phone and fax (412) 681-2692. □



Jump Development Group's Optimem automatically adjusts the memory in a Mac to allow more applications to run and prevent problems related to low memory conditions.

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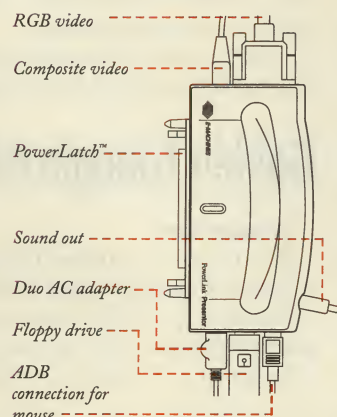


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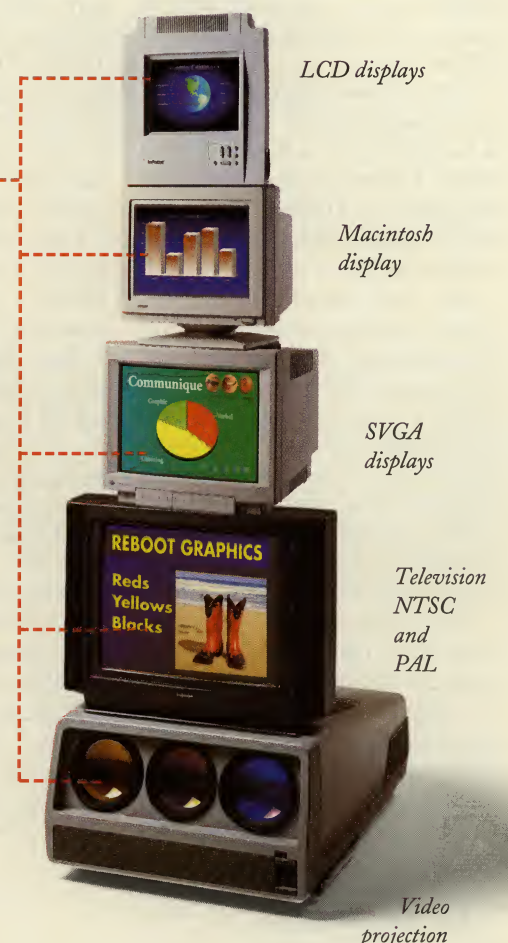
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DEC, rivals put CD-ROM on nets

InfoServer supports seven drivers, 50 users

By Kirsten L. Parkinson

San Francisco — Users looking for ways to access storage peripherals over the network have a host of new options.

► **Digital Equipment Corp.** this month shipped a new version of its InfoServer 1000 supports as many as seven SCSI devices, including hard drives, CD-ROM drives and magneto-optical drives, as well as 50 concurrent users over an Ethernet network.

The company's Local Area CD package, available now, combines an InfoServer 1000 and a single DEC CD-ROM drive. The \$2,995 system can be upgraded with as many as six additional CD-ROM drives.

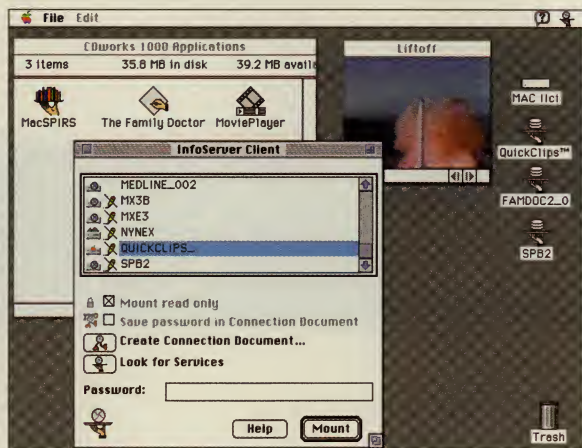
DEC is also offering the InfoServer with either four or seven DEC CD-ROM drives as part of its InfoServer Librarian systems, which are shipping now. The four-drive model lists for \$6,100, while the seven-drive model is \$8,250.

Due next month, DEC's InfoServer Publisher configuration will let users record their own CDs over the network. The system requires an InfoServer, an upcoming Mac version of DEC's \$1,000 CD/R Function Access software, a DEC hard drive and Sony Corp. of America's CD/R recording device. DEC's 665-Mbyte drive in an expansion cabinet costs \$2,845.

Mac client software compatible with all of DEC's InfoServer systems is available separately for \$785.

► **Virtual Microsystems Inc.** has incorporated DEC's InfoServer 1000 into its two new CDworks models, which shipped last week.

The CDworks systems connect



directly to an Ethernet network and allow users network access to multiple CDs. The server modules can automatically shift users to a different InfoServer to balance network traffic or if a drive or server fails.

The \$33,990 CDworks 1014 supports 100 simultaneous users and combines two InfoServers and 14 Toshiba CD-ROM drives in a dual-tower enclosure, while the \$46,990 CDworks 1021 offers three InfoServers and 21 Toshiba drives in a rackmount configuration that supports 150 simultaneous users.

Both CDworks models can be upgraded to as many as seven InfoServers and 49 CD-ROM drives, supporting 350 simultaneous users.

Both models ship with DOS client software; Mac client support is \$785 for 100 users. The price of the systems includes installation, as well as one year of support and software upgrades.

► **Optical Access International Inc.** this month announced its CD/Quartet CD-ROM servers. The systems, which are available now, incorporate four CD-ROM drives and connect directly to a network file server. The \$3,195 Model A uses Toshiba drives with average access times of 190 milliseconds, while the \$2,949 Model B offers Texel drives with a 260-

millisecond average access time.

Digital Equipment Corp. is at 146 Main St., Maynard, Mass. 01754. Phone (508) 493-7161 or (800) 344-4825.

Virtual Microsystems Inc. is at 1825 S. Grant St., Suite 700, San Mateo, Calif. 94402. Phone (415) 573-9596; fax (415) 572-8406.

Optical Access International Inc. is at 800 W. Cummings Park, Woburn, Mass. 01801. Phone (617) 937-3910 or (800) 433-5133; fax (617) 937-3950. □

CDworks from Virtual Microsystems lets as many as 350 simultaneous users mount and access as many as 49 CD-ROM drives over Ethernet networks.

Great Plains adds six modules to cross-platform Dynamics

By Jon Swartz

Fargo, N.D. — Great Plains Software last week announced six additional modules for Dynamics, its accounting and business-management package that gives Mac and Windows clients simultaneous access to host data.

The modules — Advanced Financial Analysis, Receivables Management, Payables Management, Inventory, Multisite Inventory and U.S. Payroll — will ship next month. Dynamics now has 10 modules; eventually it will have 33.

Great Plains also updated the System Manager with Report Writer and General Ledger modules to Version 1.1, incorporating support for AppleScript and Windows Dynamic Data Exchange. Other enhancements in-

clude additional master cards and reports, and additional security provisions. Upgrades are free.

Dynamics provides a choice of file servers from Microsoft Corp., Novell Inc. and FairCom Corp. It eventually will support SQL relational databases.

Pricing varies by module and number of users.

Great Plains Software is at 1701 S.W. 38th St., Fargo, N.D. 58103. Phone (701) 281-0550 or (800) 456-0025; fax (701) 282-4826. □



With Dynamics, variable allocation can be distributed across multiple departments at multiple sites.

Leader in PC data compression comes to Mac

Stacker operates at the driver level

By Robert Hess

Carlsbad, Calif. — Stac Electronics, a familiar name to users of IBM PCs and compatibles, brought its brand of compression to the Mac last week with the release of Stacker for Macintosh, an application that promises to double users' storage capacity.

Unlike most lossless file-compression packages, which take a file-by-file approach to compression, the \$149 Stacker takes a disk-based approach, compressing a disk's entire contents — data, applications and even the System folder. It works between the Mac's file system and the SCSI driver, compressing data as it is written to disk and automatically decompressing the data when it is read. According to the company, Stacker is compatible with all Mac applications and extensions and causes no noticeable slowdown in opening and closing files.

The program uses Stac's patented LZS compression technology.

Like eDisk, a driver-level compression utility recently released by Alys Software Corp., Stacker lets users keep their current disk driver and partitions. Golden Triangle

Computer Inc.'s TimesTwo, the original driver-level compressor for the Mac, installs in place of other drivers and does not currently support partitioning (see story below).

Jeffrey Wilson, a systems engineer with Boeing Defense and Space in Wichita, Kan., beta tested Stacker and said he preferred it over the file-based compression programs he had used previously.

"The constant decompression and recompression of large appli-

cations was cumbersome," Wilson said. "I also looked at TimesTwo but found that a big program like Deneba [Software's] Canvas would get bogged down; that's not a problem with Stacker."

For a limited time, Stacker will sell for an introductory price of \$74.95; owners of competing products can upgrade to Stacker for \$49.95.

Stac Electronics is at 5993 Encinas, Carlsbad, Calif. 92008. Phone (619) 431-7474; fax (619) 431-0880. □

Golden Triangle takes TimesTwo to 1.0.3

By Robert Hess

San Diego — Golden Triangle Computers Inc. this month updated TimesTwo, its SCSI-driver compression software. The new version, 1.0.3, improves the product's usability in three areas:

► **Removable media.** The \$149 package now comes with an extension that automatically mounts removable disks that were formatted with drivers other than TimesTwo. Conflicts between TimesTwo and some other drivers had prevented media from mounting properly.

► **Free space.** Previously, TimesTwo users were forced to periodically run a utility that adjusted the estimated free space available on a disk

drive. Free space is now adjusted regularly and automatically.

► **Compatibility.** Because TimesTwo had been incompatible with file-level compression programs such as Fifth Generation Systems Inc.'s AutoDoubler, users had to decompress all files prior to installing TimesTwo. Version 1.0.3 removes this restriction; the only caveat is that users must have 10 percent of free disk space to install TimesTwo.

Registered users will receive an update to Version 1.0.3, which will also be available on on-line services.

Golden Triangle Computers Inc. is at 11175 Flintkote Ave., San Diego, Calif. 92121. Phone (619) 587-0110 or (800) 326-1858; fax (619) 587-0303. □

For the record

The April 26 Special Report on printers contained several errors.

A caption on Page 44 should have read: "The LaserWriter Select 310, one of Apple's least expensive PostScript printers, lists for \$1,079." The LaserWriter Select 310 does not include PhotoGrade enhancement software.

The LaserMaster Unity 1200XL was misrepresented in a table. It has both an external SCSI port and a 20-Mbyte internal hard disk; it does not use the Canon LBP-BX engine. The table omitted a footnote

explaining that Xante Corp.'s Accel-a-Writer 8100 requires an upgrade to achieve the 1,200-by-1,200-pixel maximum vertical resolution, bringing the cost to \$6,695.

The headline of the sidebar on Page 46 was misleading. The author intended to communicate that upgrading a LaserWriter's memory gives more room for manually downloaded fonts, not an increase in power. The same sidebar gave incorrect names for the Personal LaserWriter NT and the Personal LaserWriter NTR.

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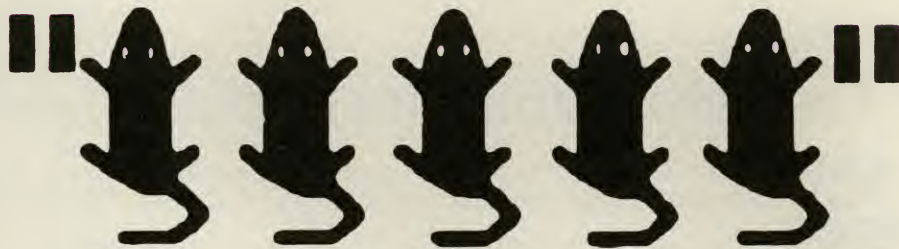
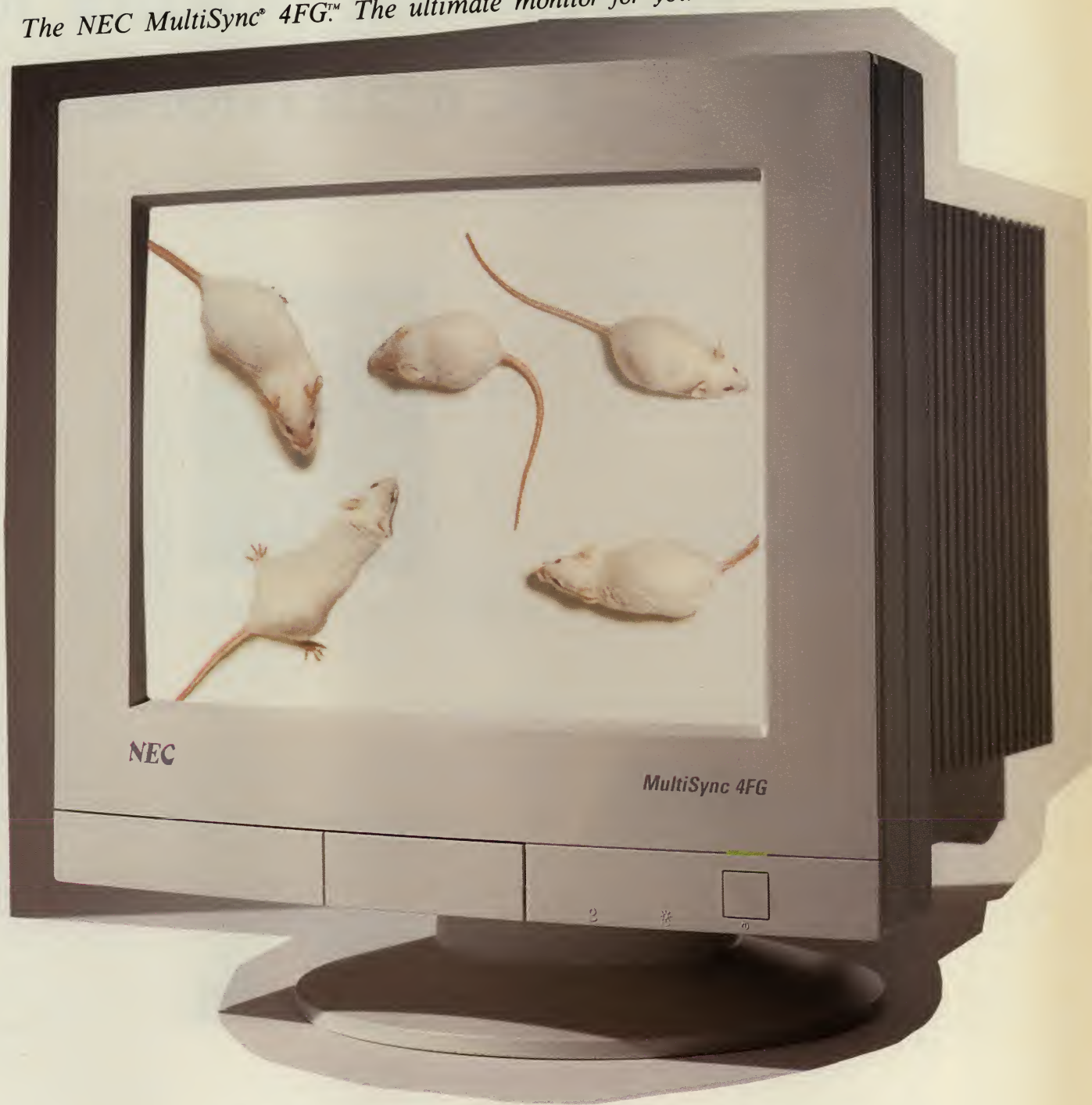
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*-MacUser Magazine
Aug. '92*

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Our **AccuColor™ Control System** prompted *MacUser* to make special mention of the "easy color adjustments." AccuColor lets you adjust on-screen colors, so if you're looking for mouse-tail pink, that's what you'll get.

If, however, color control is not a priority for you, you'll be very happy with NEC's MultiSync 3FGx monitor, which shares almost all of the 4FG's award-winning features. Both monitors produce sharp, bright images, crisp graphics and vibrant colors. An Invar shadow mask provides increased brightness without loss of focus.

Another big idea—the display area. The large 15" screen (13.8" active display area) coupled with FullScan™ capability for edge-to-edge images gives you a larger display area than typical 13" or 14" RGB monitors.

How do you make an NEC MultiSync monitor work with your Mac? Just plug it in, using NEC's free FG/Mac cable adapter. It works with the Mac's on-board video, so you won't need an add-in video board*.

Both monitors are compatible with the Mac® II family, Quadra™ series, LC's, PowerBooks™ and PC systems. So you can use just one monitor for both types of platforms. *MacUser* noted the "powerful and versatile controls make switching from a Mac to a PC a snap."

And to make these monitors as user-friendly as possible, we've included ergonomic features such as a tilt/swivel base and up-front user controls. Plus, our Reduced Magnetic Field™ technology meets the strict Swedish MPR II guidelines for magnetic field emissions.

There are lots of reasons for considering an NEC MultiSync monitor for your Mac—the sharp, bright images, the vibrant colors, the large display area, the flexibility, the compatibility—to name five. And the 🐭🐭🐭🐭🐭 to name five more.

For more information on our award-winning monitors, call 1-800-NEC-INFO (in Canada: 1-800-343-4418). Or for a complete brochure via fax, call NEC FastFacts™ at 1-800-366-0476, request #62234.

*For Macintosh 640 x 480 resolution, just attach NEC's FG/Mac cable adapter and plug into: Macintosh IIsi, Ilic, LC, LCII, IliX, IliV, Quadra™ 700, Quadra 900, Quadra 950, Performa™ 400, Performa 600, PowerBook™ 160, PowerBook 180, and the PowerBook 210 and PowerBook 230 with either the DuoDock™ or MiniDock™. Or with an add-in video card: Macintosh II, IliX, IliC, IliF, PowerBook 140, PowerBook 145, and PowerBook 170. Get the 640 x 480 FG/Mac adapter free by calling NEC at (312) 622-7427 8:30AM-5PM CST.

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DiiMO takes over LogiCache accelerator-card line

By Raines Cohen

Austin, Texas — DiiMO Technologies Inc. last month took over distribution of the LogiCache accelerator from Logica Research Inc. and announced plans for new models.

DiiMO, formerly known as Teknovation Inc., developed the line of 50-MHz 68030-

based accelerator cards and licensed them to Logica, also based in Austin. The cards will now be sold under the DiiMOCache name.

The cards fit the processor direct slots of a variety of Macs and include a 64-Kbyte static-RAM cache. DiiMO currently offers versions for the SE/30, IIfx, IIfx, IIsi and IIfx and

promises to ship in June a version for the IIfx, IIfx and Performa 600, followed by a Mac II adapter in July.

The 50-MHz card is priced at \$749 (\$849 with math coprocessor). Adapters for the IIfx, IIfx and II are priced at \$69, while the SE/30 and IIsi adapters cost \$49 each.

The company said it will ship this year 68030-based accelerators for the LC, LC II, LC III and Performa 400, along with a 68040-based card that will include an upgrade path for current DiiMO card users.

DiiMO offers a trade-in program in which owners of other vendors' cache cards can switch to its accelerators at a reduced price.

DiiMO Technologies Inc. is at 2540 Brockton Drive, Suite 110, Austin, Texas 78758. Phone (512) 834-0106; fax (512) 834-9623. □



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whole lot better.

Sun Solaris, SGI Motif users can read Mac disks with TransferPro

By Robert Hess

Los Alamos, N.M. — Digital Instrumentation Technology Inc. has expanded the Unix interfaces available for its TransferPro software that facilitates transfer of data between personal computers and workstations.

TransferPro lets users mount and initialize Mac and MS-DOS formatted disks on Unix workstations and perform file operations such as copying, moving, deleting and renaming files and folders.

Previously available only for Sun Microsystems Inc.'s SunOS, TransferPro is now available for Sun's Solaris and Silicon Graphics Inc.'s Motif. A graphical interface and a character-based interface are also available. When the character-based interface is used, TransferPro may be included in shell scripts.

TransferPro also supports SCSI-based drives such as Bernoulli, SyQuest and magneto-optical drives.

TransferPro is \$349 on any platform. A floating-user license, which allows use of TransferPro on multiple computers as long as only one is used at a time, is \$849.

Digital Instrumentation Technology Inc. is at 127 Eastgate Drive, No. 30500, Los Alamos, N.M. 87544. Phone (505) 662-1459; fax (505) 662-0897. □

Liken environments due for PowerPC, RS/6000

San Diego — Xcelerated Systems Inc. has announced PowerPC and IBM RS/6000 versions of its Liken application environment.

The Mac emulator lets users run off-the-shelf Mac applications on Unix hardware such as workstations from Sun Microsystems Inc. and Hewlett-Packard Co. Liken also supports connectivity to AppleShare file servers and mail servers.

The PowerPC version of Liken will be released simultaneously with the release of PowerPC-based hardware, XSI said. The RS/6000 version will ship at the end of June.

On other platforms, Liken is priced at \$695 for a single-user version and \$895 for a floating license; the PowerPC and RS/6000 versions will be in line with that pricing, XSI said.

Xcelerated Systems Inc. is at 9245 Sky Park Court, Suite 130, San Diego, Calif. 92123. Phone (619) 576-3080; fax (619) 576-2504. □

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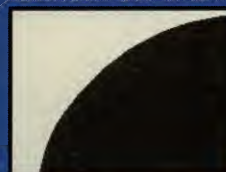
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*"La Cie's Photoshop plug-in is a
delight to use."* Macweek

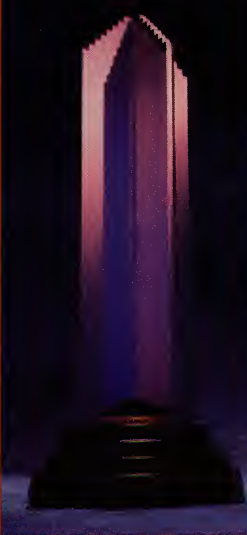


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ScriptGen Pro creates scripts for Installer

Developers can build scripts to copy files, install resources

By Raines Cohen

Dallas — StepUp Software last week shipped a program that can generate scripts for Apple's Installer application.

ScriptGen Pro lets developers graphically build scripts that copy files, install resources, display color graphics and splash screens and play sounds. The end user running the resulting script can automatically install either the default settings (Easy Install) or just a custom subset of the program.

ScriptGen Pro can import existing Installer (versions 3.2 through 3.4) scripts and export reports to text files. It can also generate and compile Rez code by sending custom Apple events to Apple's Macintosh Programmer's Workshop 3.3.

Until July 19 the program will come with two add-ons that let scripts warn users of error conditions and ask users to select a destination folder for installations.

ScriptGen Pro is compatible with Installer-Pack, a \$219 collection of resources that enhance installer scripts and let developers compress files to install in StuffIt, Diamond or Compact Pro formats (see MacWEEK, April 19).

"I've never written Installer scripts before, and I wouldn't know how to write one," said Jacob Merriwether, president of Quality Computer Systems Inc. of Chester Springs, Pa. "One of my clients is now installing 300 copies of a time-sheets application using the Installer and scripts I was able to create with ScriptGen Pro."

ScriptGen Pro is based on a ScriptGen shareware application released last year (see MacWEEK, Sept. 28, 1992).

StepUp Software is at 3883 Turtle Creek Blvd., Penthouse 10, Dallas, Texas 75219. Phone (214) 520-7717. □

MicroMac add-on can double SIMM slots

4 circuit boards fit into sockets in II, IIx, IIcx, IIci

By April Streeter

Aliso Viejo, Calif. — MicroMac Technology Inc. this month shipped a hardware add-on that doubles the number of SIMM slots in Mac II series computers.

SIMMdoubler II, priced at \$139, consists of four circuit boards that fit into the original

Madson portable PB chargers condition, recharge batteries

By Ian G. Jacobs

Corte Madera, Calif. — The Madson Line this month shipped a portable PowerBook battery charger that the company said can increase the current flowing from the battery.

The \$129 Portable Negative Delta V fully charges a dead nickel-cadmium battery (for the PowerBook 140 through 180c) in three and a half hours. Apple's charger takes much longer to fill a battery entirely.

The charger can also recharge batteries

by draining them until there is only 1 volt left and then charging them up to capacity.

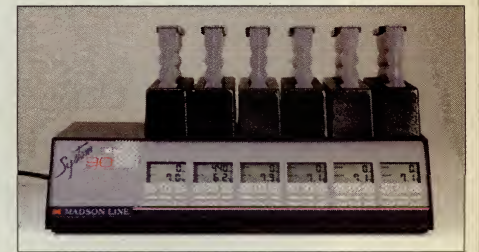
The 1-pound portable charger comes with an independent power supply that weighs 2 pounds. Madson said it will ship in August a 1-pound power supply with an LED light that tells whether a power source is live.

Madson, known in the Mac community mainly for its line of carrying cases, introduced a desktop charger early this year that runs batteries through this conditioning process three times.

The System 90 IQ Plus chargers can analyze the amount of capacity left in a battery in about six hours and charge dead batteries in three and a half hours. With \$25 adapters, the units can simultaneously charge nickel-cadmium camcorder or cellular-phone batteries.

A System 90 IQ Plus costs \$320 for a one-battery-at-a-time model, \$590 for a unit that can handle three batteries and \$990 for a unit that can handle six batteries.

The Madson Line is at P.O. Box 338, Corte Madera, Calif. 94976. Phone (415) 927-3600; fax (415) 927-4661. □



One of the Madson Line's portable System 90 IQ Plus desktop chargers can charge, condition and analyze as many as six batteries at a time.

APS hard drives fit LaserWriter Pro 630

Kansas City, Mo. — APS Technologies this month shipped three drives configured for Apple's LaserWriter Pro 630.

The APS LW Pro-Drives, based on 2.5-inch Quantum mechanisms, are available in 80-, 120- and 160-Mbyte capacities.

The 80-Mbyte model, which lists for \$329, offers an average access time of 27 milliseconds and a data transfer rate of 1 Mbyte per second. The \$379 120-Mbyte drive has an average access time of 27 milliseconds and a data transfer rate of 1.1 Mbytes per second. The 160-

Mbyte model lists for \$529 and provides an average access time of 28 milliseconds and a data transfer rate of 1.9 Mbytes per second.

All three drives include mounting brackets and cabling for installation in the printer. Users can also mount existing 2.5-inch drives in the LaserWriter Pro with the \$69 APS LW Pro-Kit.

APS Technologies is at 6131 Deramus, P.O. Box 4987, Kansas City, Mo. 64120-0087. Phone (816) 483-6100 or (800) 235-2753; fax (816) 483-3077. □

Free Semaphore utility puts more ZIP into databases

Aptos, Calif. — Semaphore Corp. this month released a free utility with source code showing how databases can use Apple events to tap its ZIP-code database.

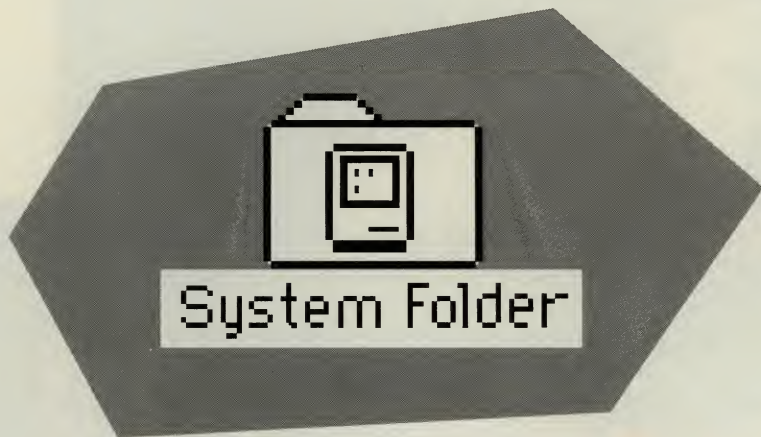
ZP4, the company's database CD-ROM of ZIP+4 codes, cleans addresses and straightens address data for more-efficient mailing.

The new utility, called FileCleaner, links a database to ZP4. It is provided free as both a HyperCard stack and a stand-alone application written in Pascal. Both programs are included

on the new \$125 May-to-August 1993 edition of the ZP4 CD-ROM. The next edition will include an AppleScript-based version.

FileCleaner can communicate with a Claris Corp. FileMaker database and ZP4 using Apple events. As a result, users don't need to add any scripts or calculation fields to a FileMaker database to make it work with ZP4.


Semaphore Corp. is at 207 Granada Drive, Aptos, Calif. 95003-5007. Phone (408) 688-9200; fax (408) 662-2717. □



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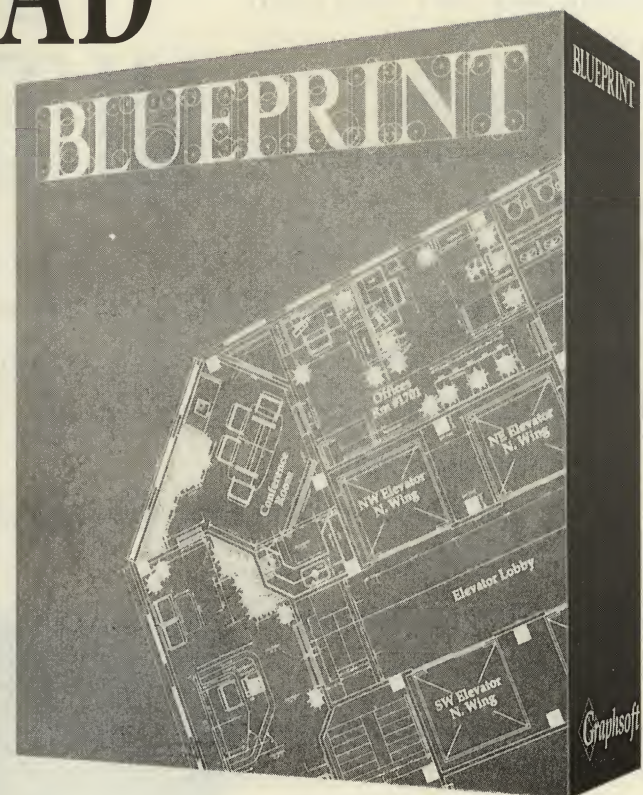


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none

Programmability:

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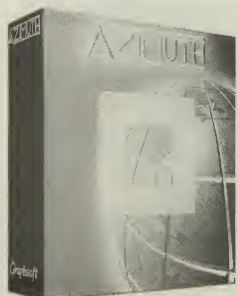
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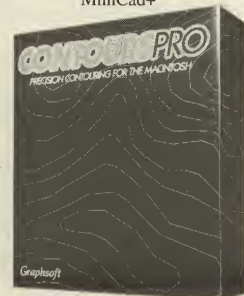
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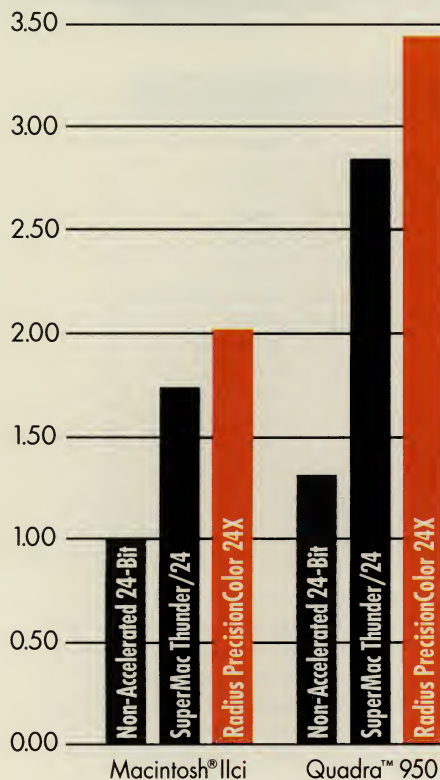
In a Hydra QuickDraw™ performance test, Ingram Laboratories found PrecisionColor 24X™ was up to 19% faster.

That's surprising, especially since the makers of Thunder/24 want you to pay \$850 more for their card.

PrecisionColor 24X isn't just faster and less expensive. It's also available in 7" and 9" versions. So it will fit in all of Apple's newly-announced systems, as well as current models.

No wonder MacUser rated PrecisionColor 24X "Best Price/Performance." And both MacWorld and Byte named it their "Readers' Choice."

Hydra QuickDraw Performance Test
Overall Performance

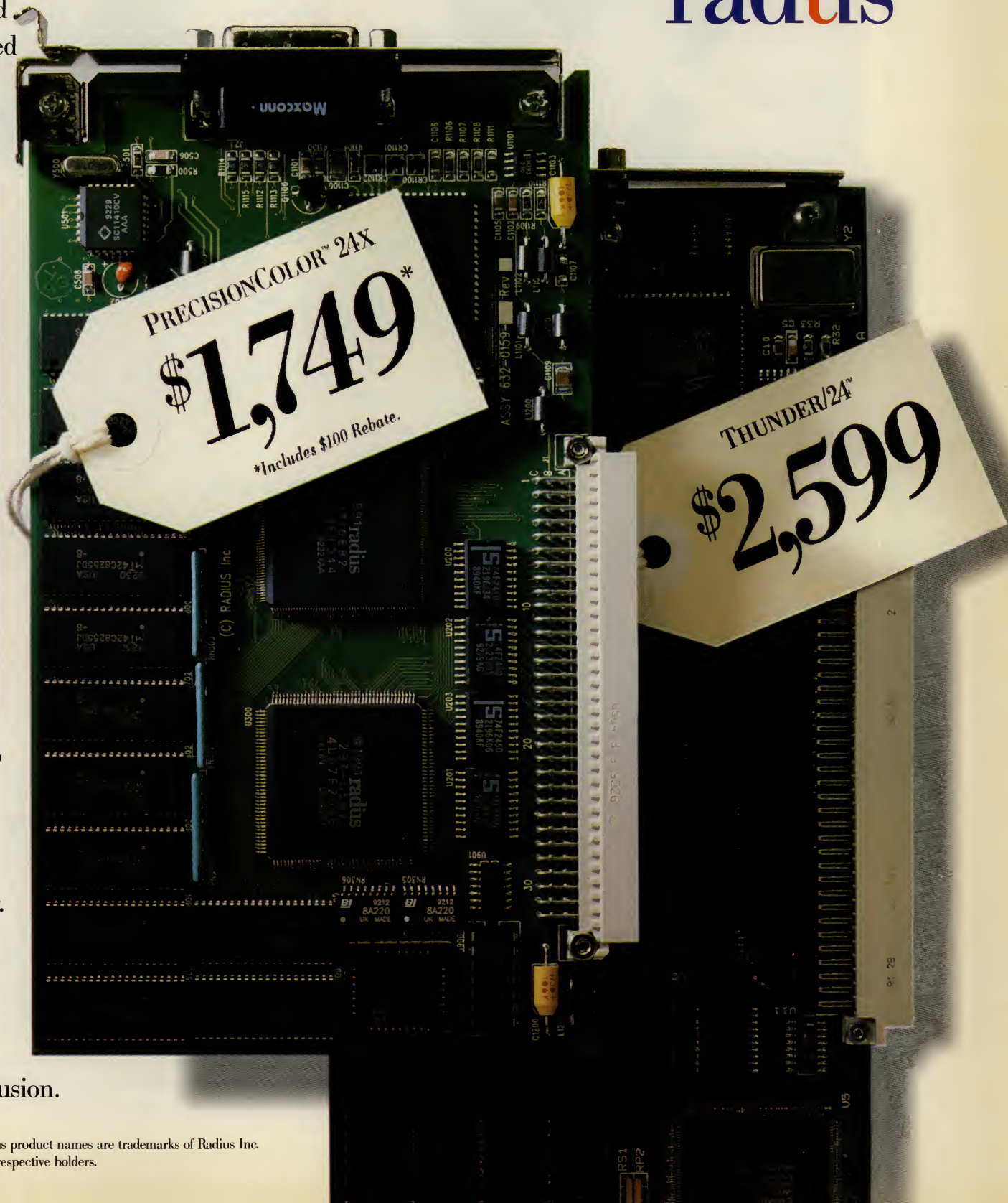


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By April Streeter

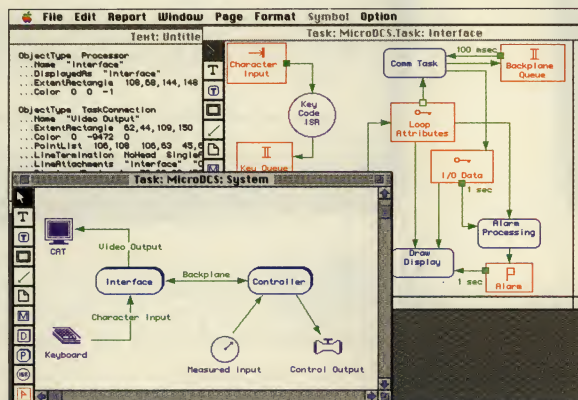
Marshalltown, Iowa — Excel Software recently beefed up its line of CASE tools with a new high-end design application, updates to core MacDesigner and MacAnalyst programs, and a new hybrid package that blends the latter two programs.

► MacDesigner/Expert.

Expert is an advanced set of tools for computer-aided software engineering. In addition to the original MacDesigner's object-oriented and structured design components, Expert includes a data dictionary and a requirement database. It also supports task diagrams, which can be used to represent both the components and interactions in advanced software systems such as client-server. Expert is available now for \$1,595. The company continues to offer an Expert version of MacAnalyst.

► **MacDesigner/MacAnalyst 4.0.** Both products have been upgraded to Version 4.0, from 3.2 and 3.3, respectively.

Both MacDesigner and MacAnalyst now support System 7's publish and subscribe, enabling users to quickly transfer tables and diagrams between applications. Both also support an eight-bit-color palette for use in diagrammed objects, tables and text selec-



Version 4.0 of Excel Software's computer-aided software-engineering tools adds color and the use of representational icons to the programs' task-diagramming features.

tions. Upgrades cost 30 percent of the program's original purchase price. The programs are \$995 each.

► **MacA&D.** Available now for \$2,995, MacA&D blends the analysis features of MacAnalyst with the object-oriented design environment of MacDesigner. MacA&D also includes the requirements database and task diagram features of MacDesigner/Expert.

All the programs require either System 7 or A/UX 3.

Excel Software is at P.O. Box 1414, Marshalltown, Iowa 50158. Phone (515) 752-5359; fax (515) 752-2435. □

American Heritage Dictionary updated

By Ian G. Jacobs

Novato, Calif. — The American Heritage Dictionary has been updated for the first time in 10 years, and its electronic counterpart has also been revised.

WordStar International Inc. last week shipped two new versions of the electronic dictionary.

► **The Deluxe American Heritage Dictionary** contains more than 310,000 words and takes up 16 Mbytes.

The \$129 dictionary can be accessed from any word processor. It features the WordHunter utility, which allows users to brainstorm by asking for related words and then offering suggestions.

The program also offers an alternate

spelling function and a complete Roget's thesaurus, and it now allows the use of wild cards in searches. A new Browse feature lets users look at one word after another as if skimming through an actual book.

► **The Standard American Heritage Dictionary** offers more than 163,000 words and takes up only 6 Mbytes of memory. Otherwise, the \$59.95 program has identical features to the Deluxe version.

Upgrades are available for users of older versions of the dictionary for \$29 to \$49, depending on the version.

WordStar International Inc. is at 201 Alameda del Prado, Novato, Calif. 94949. Phone (415) 382-8000 or (800) 523-3520; fax (415) 883-1629. □

Economic-data stacks available for analysis

Cloverdale, Calif. — PEMD Education Group Ltd. this month shipped four series of economic data collected by The World Bank for use in any data-analysis program.

► **Social Indicators of Development 1991-92** contains 94 indicators of poverty and development for 171 countries. This series is \$70.

► **African Development Indicators** offers data on development and aid in Africa. This series is \$70.

► **World Tables 1992** has 136 economic indicators for 162 countries. The \$95 series

features information from 1970 through 1991.

► **World Debt Tables 1992-93** provides data on international debt in 116 countries. The \$95 series contains 190 indicators dating to 1970.

All the data, which is stored in HyperCard stacks, can be exported to data-analysis applications as text files or via the Mac Clipboard.

PEMD Education Group Ltd. is at 35000 Highway 128, P.O. Box 39, Cloverdale, Calif. 95425. Phone (707) 894-3668; fax (707) 894-5200. □

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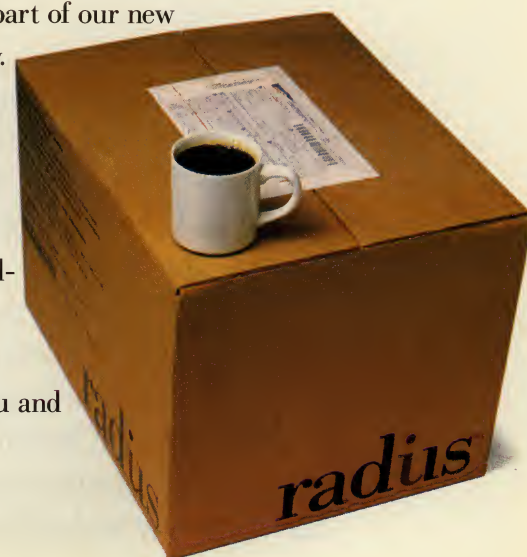
You pay nothing extra for this extra service. That's right, absolutely nothing. It's all part of our new

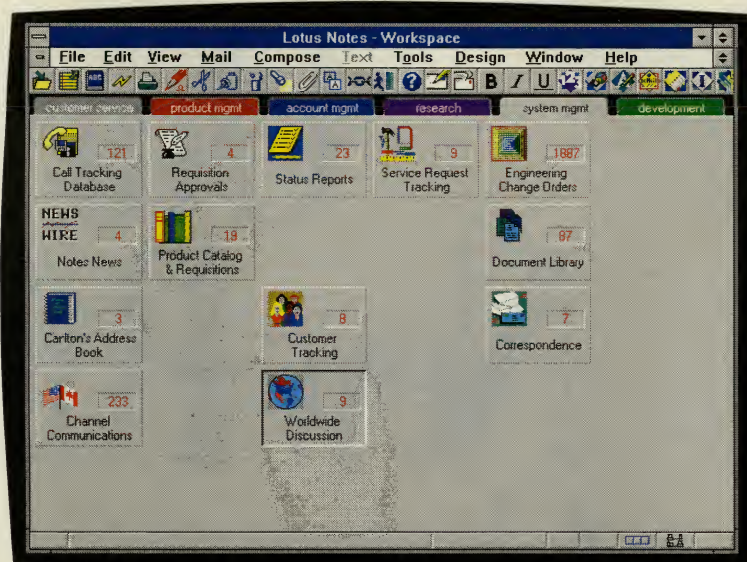
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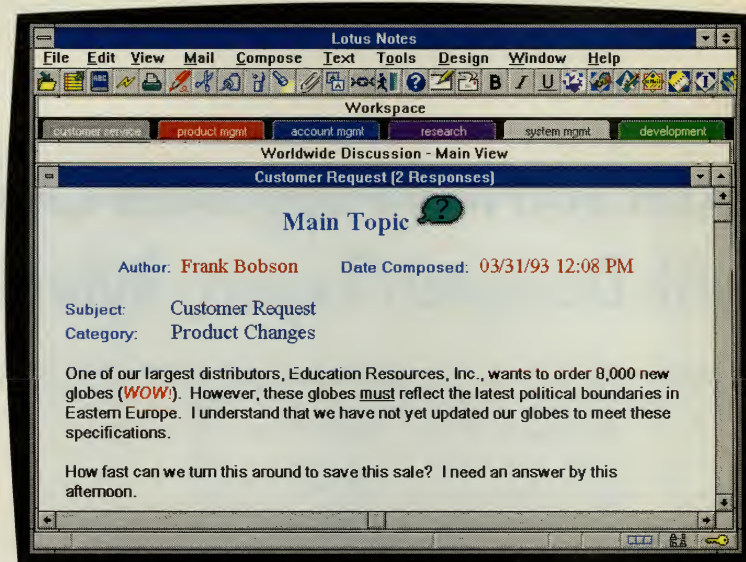
Ext. 8A for more information about this great new service. Or to receive faxed information about our products call 1-800-966-7360.

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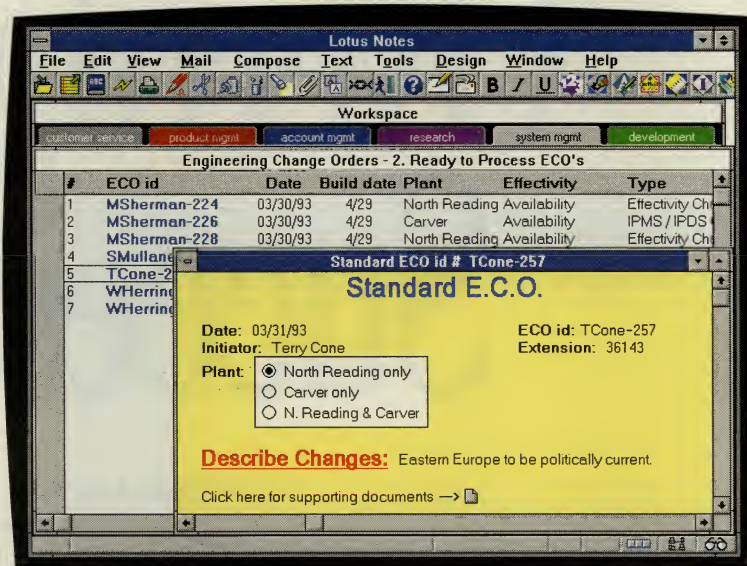




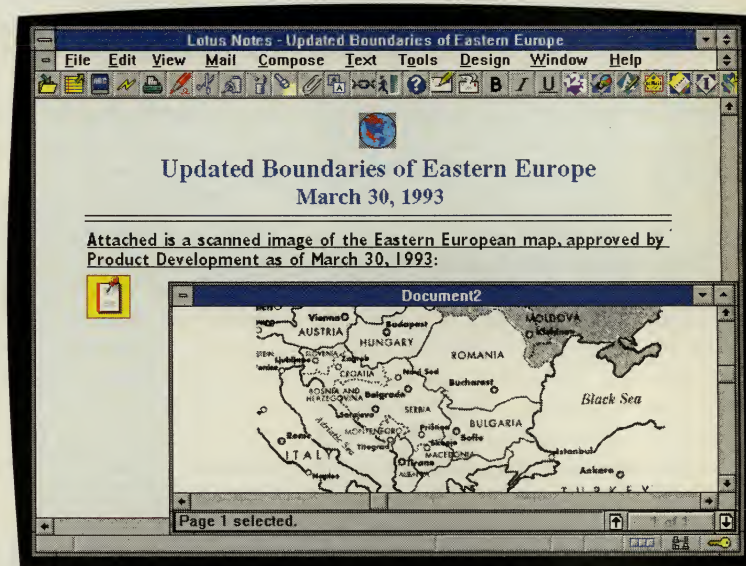
1. This is James' Notes desktop. He uses it to access information and work quickly with people in all departments to solve problems worldwide. James clicks on the Worldwide Discussion application to catch up with important company news. The SmartIcons across the top make it even easier to work in Notes.



2. The field rep in Texas is working on a request from a customer. But to make the sale the product, in this case a globe, has to be changed to reflect the most up-to-date countries and borders. And evidently time is critical. The competition must already be in there pitching.



5. Once he has the information, he clicks on the Engineering Change Order application to request specific product changes from the plant in North Reading. He links the supporting Newswire information to the E.C.O. It will be easily viewed with a single click of a button.



6. After lunch he opens a document from Ellen in product development, who has responded with the necessary changes, and scheduling information. The new art was scanned directly through Lotus Notes: Document Imaging from the art department. James approves the art for manufacturing.

How Lotus Notes Release

Thousands of companies already know how Lotus Notes® helps them respond more quickly and effectively to the demands of everyday business. Now Release 3 extends that power to new dimensions.

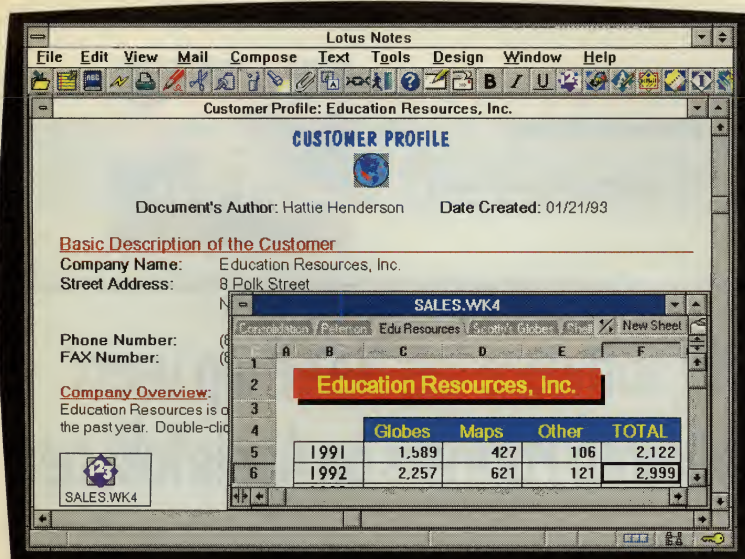
Just watch how James Carlton, a new district manager at Global Publishing, uses Notes Release 3 to solve a major global problem in short order. See how he uses information from on-site and remote locations. From both inside the company and external sources. Across a



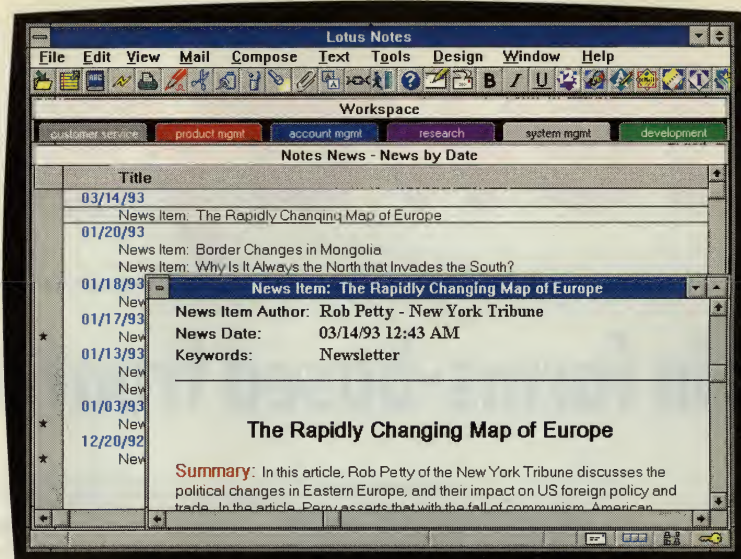
variety of platforms. How he uses applications such as Account Tracking, Newswire, and Engineering Change Orders to get a new product developed fast. And how he creates an informal team spanning a range of departments to do it.

With the new Release 3, Lotus Notes now supports all the leading GUI platforms: Windows™, OS/2®, UNIX®,* even Macintosh®.

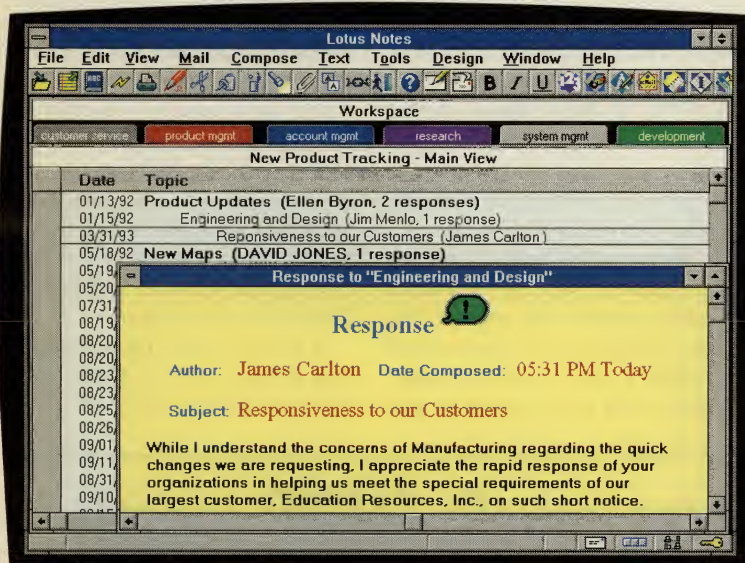
Which means the award-winning workgroup power of Lotus Notes is now readily available to help virtually all networked businesses improve



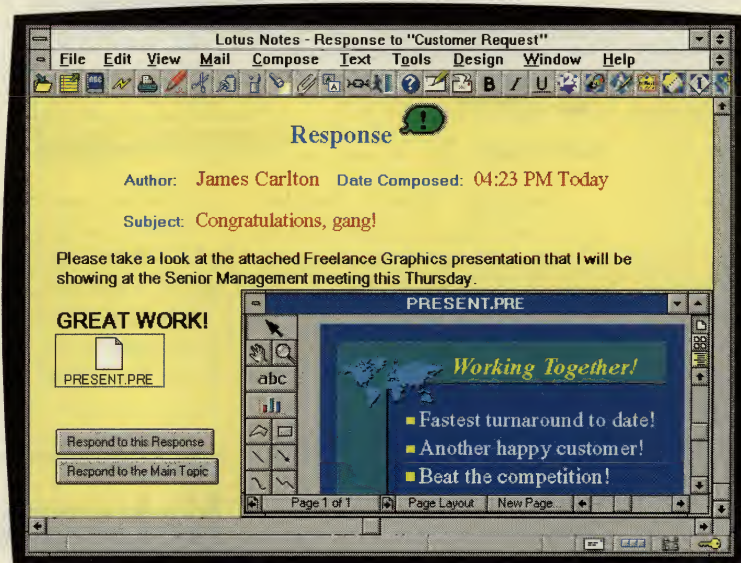
3. He clicks on the Customer Tracking application to learn more about this customer. The profile includes an attached 1-2-3® spreadsheet. He double clicks the icon to open the spreadsheet and finds that Education Resources is a very large customer that pays its bills.



4. James' next step is to click on the Newswire database for the most up-to-date report on precisely what geographical changes will have to be made on the new globe. And just how extensive they'll be.



7. On the Product Tracking application, all departments involved have confirmed that they can meet the schedule. However, they've cautioned James to be careful about rushing schedules in the future. James uses the Discussion database to acknowledge their comments and thank them for their efforts.



8. Wanting to record and promote the team's accomplishments, James puts together a presentation for senior management in Freelance Graphics. Then he posts the presentation in the Presentation database so everyone can see how the team rearranged the world to save a big account.

se 3 changed the world.

their performance. By accelerating business processes and helping people work together more effectively than ever before.

You'll find your favorite user-friendly features from other Lotus® applications like SmartIcons™ and a status bar make Notes even easier to use.

Release 3 also features enhanced templates that are very easy to customize so you can build new applications faster and more efficiently.

But you don't have to change your world to get going on Notes. Now you can get everything you need in the

Lotus Notes Starter Pack for just \$995 (SRP). It includes one Notes Server for Windows and two Notes Clients for Windows. Plus more than 25 ready-to-use applications for business processes like account management, customer service and product development. For information call **1-800-828-7086, ext. 8903** or visit your Lotus Authorized Reseller or Lotus Business Partner.

Lotus Notes
Workgroup Applications Software for Windows



Brio fills in forms-based front ends

DataEdit filters SQL databases

By Mitch Ratcliffe

San Francisco — Brio Technologies Inc. this week is shipping a new forms-based front-ending tool called DataEdit.

DataEdit lets users generate front ends to retrieve and analyze information from SQL databases, including servers from Oracle Corp. and Sybase Inc. DataEdit supports fields that contain binary large objects (BLOBs), such as graphics and scanned photographs. Runtime applications created with DataEdit require Apple's Data Access Language and Data Access Manager, Oracle's SQL*Net, or Sybase Open Client.

DataEdit includes:

► **DataEdit Designer.** A built-in SQL engine facilitates analysis of information after it is retrieved from a server. DataEdit Designer downloads existing database information and maps it to the local SQL functions in a DataEdit form. Users can then create fields and tables in the form, as well as customize the form by defining new relationships between fields.

Brio's DataEdit can create forms-based front ends that allow users to retrieve information, including graphics, from a variety of SQL databases.

► DataEdit Forms Builder.

Users build graphical front ends by clicking field names and dragging their selections from a list into the forms interface. Windows may be configured to accommodate large data fields, including images, retrieved from the server.

► DataEdit runtime licenses.

Users who purchase the \$2,500 DataEdit Starter Kit, which includes Designer and Forms Builder, can distribute up to five copies of DataEdit applications. The kit also comes with one year of free technical support. Additional runtime licenses are \$199, and Brio said

quantity discounts are available.

Without runtime licenses, DataEdit is \$999. DataEdit clients for Mac or Windows users are \$199.

By mid-June, Brio expects to ship an upgrade to its DataPrism data dipper. Brio's \$399 DataPrism 2.0.5
See Brio, Page 20

IPT software lets NeXTstep users become Partners on AppleTalk nets

By April Streeter

San Luis Obispo, Calif. — Information Presentation Technologies Inc. is readying software that lets users of NeXT Computer Inc.'s new NeXTstep 3.1 for 486 platforms connect to AppleTalk networks.

IPT's \$149 Partner for NeXT, due next month, lets a NeXTstep user with a 486-based computer or NeXT's own hardware connect to an AppleShare server through NeXTstep's file browser. uShare, another IPT program, priced at \$295, allows a computer running NeXTstep to function as an AFP (AppleTalk Filing Protocol) server for Mac clients.

► **Partner.** NeXTstep 3.1, the latest version of NeXT's Unix-based operating system, was released last week for 486-based hardware as well as NeXT's own now-discontinued hardware. But the new version does

not include AppleTalk support and, thus, needs Partner to provide AppleTalk connectivity for NeXT clients.

Partner is also available for NeXTstep 3.0, a previous version that runs only on NeXT's hardware. Version 3.0 includes its own AppleTalk stack and AppleShare client; on that system, Partner adds bidirectional file sharing and printer access for Macs and NeXT clients.

► **uShare.** In environments where users want to capitalize on NeXTstep's multitasking abilities, uShare enables a NeXTstep system to function as a nondedicated AppleShare-compatible server. Mac users access the NeXT server through the Chooser and transfer files in the normal manner.

IPT Inc. is at 555 Chorro St., San Luis Obispo, Calif. 93405. Phone (805) 541-3000; fax (805) 541-3037. □

APT unlocks new ARA server

By April Streeter

Ijamsville, Md. — A new AppleTalk Remote Access server entered the market this month with software designed to tighten dial-in security.

APT Communications Inc.'s APT Dial Server, available now for \$1,695, will support three modems through its dial-in ports and one Ethernet connection via a thick, thin or 10BASE T port. AppleTalk Remote Access (ARA) client software is not included.

Management software that ships with the APT Dial Server allows the network manager to configure and troubleshoot any number of Dial Servers on a network.

According to one beta user, it is the detailed security features that differentiate APT's Dial Server from similar products from Cayman Systems Inc. and Shiva Corp.

"We have a whole group of clients who dial in. All I want them to see is a single zone and a single

device in that zone," said Greg Palen, technical director of Gazlay Marketing Group, a color separator based in Kansas City, Kan. "[Dial Server] is the only one that allows me to do that. It's the closest thing to bulletproof telecommunications there is."

Apart from supporting ARA's password protection, callback and maximum connection time, Dial Server also allows network managers to organize users into groups, with different access privileges for each group. A network manager may then give access to entire networks, to specified zones or even to selected devices within zones, such as a printer or a Mac.

APT bundles two APT Dial Servers with a 19-inch rackmount for \$3,400.

APT Communications Inc. is at 9607 Dr. Perry Road, Ijamsville, Md. 21754. Phone (301) 831-1182 or (800) 842-0626; fax (301) 874-5255. □

Network Resources unveils SNMP console

By Leonard Heymann

San Jose, Calif. — Network Resources Corp. this week joins the ranks of Macintosh software vendors offering SNMP management consoles for a fraction of the cost of similar Unix-based programs.

The \$2,995 MultiGate Manager 5.0 is an expanded version of software NRC originally developed to manage its own hubs. Version 5.0 reports on the status and performance of any network device that supports SNMP (Simple Network Management Protocol) using standard and private MIBs (Management Information Bases).

MultiGate Manager lets users view device status information and set monitoring frequencies and alarm thresholds from a single window. Traffic data can be displayed graphically and imported to other applications for further analysis. Alerts can be set to sound or flash alarms, as well as send paging messages via Notify! from Ex Machina Inc. of New York.

Like Caravelle Networks Corp.'s NetWorks 3.0 and InterCon Systems Corp.'s WatchTower, NRC's console offers many SNMP management features found in products from Hewlett-Packard Co., Sun Microsystems Inc. and

others that cost at least \$20,000. NRC also offers several innovations, including:

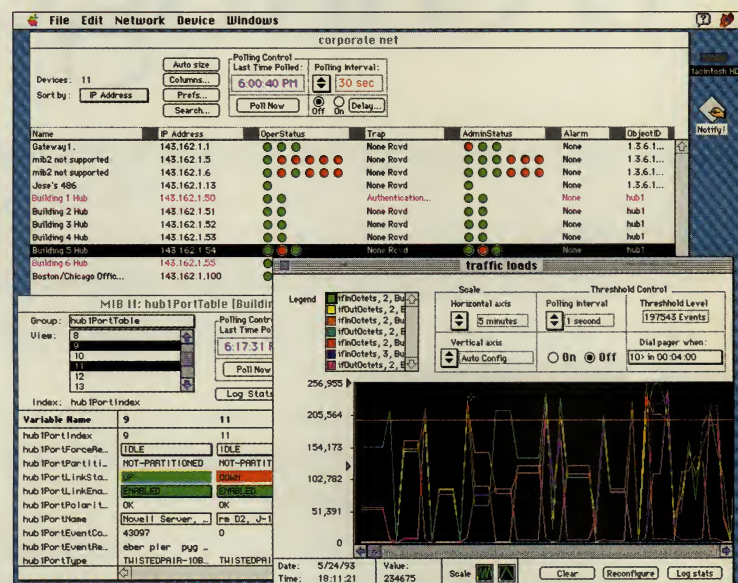
► **Direct manipulation of data.** By defining everything in the network as a subclass of a standard object, users can easily modify tables and drag data into predefined templates.

► **Drop-in MIB support.** New MIBs can be added to the console without the need for special han-

dling by users; NRC will compile new standard and private MIBs from third parties and provide them to users.

MultiGate Manager requires MacTCP, which NRC is bundling with its software. The console can be used with AppleTalk Remote Access.

Network Resources Corp. is at 61 Daggett Drive, San Jose, Calif. 95134. Phone (408) 383-9300; fax (408) 383-0136. □



Network Resources' MultiGate Manager 5.0 lets users create customized views to monitor the status of network devices, as well as graph their performance over time.

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Asanté now takes Ethernet all the way to your laser printer.

The proven leader in Macintosh® networking now offers more Ethernet® solutions than ever. Introducing AsantéPrint™, the simplest way to connect up to 2 LocalTalk™ laser printers or other devices directly to a high-speed Ethernet network.

The reliable EtherTalk to LocalTalk converter.

AsantéPrint has no switches to set or installation software to load, so it works right out of the box. And, unlike other converters of its kind, AsantéPrint has no necessary power-up sequence. Because of this, it's the only EtherTalk-to-LocalTalk converter that is capable of unattended recovery after a power outage.

AsantéPrint is so simple, it's perfect for small networks. It's also ideal for more sophisticated networks when combined with AsantéPrint management software. This combination offers you management and security features which provide an unparalleled level of control over all your Ethernet and LocalTalk connections.



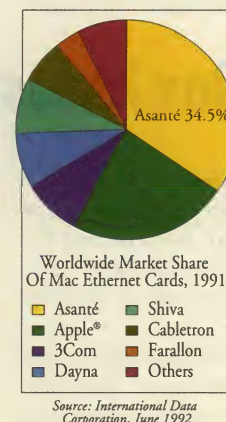
The security software assigns passwords to any or all of your connected LocalTalk devices, and even allows you to specify passwords for specific LocalTalk classes such as color printers or dial-out modems. So you can protect peripherals from unauthorized or accidental access.

Asanté. All the right connections.

Asanté™ has a reputation for producing compatible, reliable networking products. We offer a full family of best-selling Ethernet and Token Ring® adapter cards for PCs and Macs®. And a full line of intelligent and non-intelligent 10BaseT hubs. Now we're taking Ethernet all the way to your laser printer.

AsantéPrint. The latest innovation in Ethernet solutions from the company with all the right connections.

Resellers: Asanté products are available from Ingram Micro, Merisel and Tech Data.



Webster router does double duty

By April Streater

San Jose, Calif. — Webster Computer Corp. next month plans to ship a new AppleTalk router and TCP/IP gateway that, with a future upgrade, will also function as an AppleTalk Remote Access server.

The \$1,995 MultiPort/LT has four serial/LocalTalk ports that can be configured to route AppleTalk or Digital Equipment Corp.'s DECnet Level 1 protocols. When used as a gateway, the MultiPort/LT encapsulates Internet Protocol packets. A single Ethernet network connection is provided via a thick, thin or 10BASE T port.

The MultiPort/LT replaces the company's four-port MultiPort/MPG device, which Webster said it will continue to support. The LT costs \$1,450 less than the MPG, a result of the use of a smaller, lighter chassis as well as price pressure in the LocalTalk/Ethernet market, the company said.



The MultiPort/LT's four ports can support LocalTalk routing or remote-access dial-in.

The new router uses both a Motorola 68331 microprocessor and a direct memory access chip that helps speed the router's throughput by handling data transfer when the main processor is involved in protocol conversions, Webster said.

The company is planning to ship in September a software upgrade that will allow any of MultiPort/LT's four serial ports to be configured for AppleTalk Remote Access. At that time Webster will also ship an

upgrade to its MultiPort Manager router-management software to support SNMP (Simple Network Management Protocol) Version 2.

The upgrade will be free.

Through June, Webster will give customers buying a MultiPort/LT a \$300 trade-in for Shiva FastPath routers and comparable devices.

Webster Computer Corp. is at 2109 O'Toole Ave., Suite J, San Jose, Calif. 95131. Phone (408) 954-8054; fax (408) 954-1832. □

GlobalWay gives telecom packages virtual ports

By Nathalie Welch

Campbell, Calif. — GlobalWay's PortConnector software will give new life to telecommunications packages that have limited or no support for the Macintosh Communications Toolbox.

To be priced at about \$45 when it ships next month, PortConnector will provide "virtual ports" to applications that control serial ports directly and modem-command emulation to programs that are hard-coded to talk to modems. As a result, old and inflexible communications software will be able to take advantage of the various nonmodem connection tools available for the Comm

Toolbox, such as those for DECnet, TCP/IP, X.25 and ISDN (Integrated Services Digital Network).

According to GlobalWay, some programs, such as AppleTalk Remote Access, are Comm Toolbox-compatible but will work only with the Modem Connection Tool because they send AT commands to initiate connections. Such programs normally are incapable of communicating over other types of connections. The PortConnector control panel fools the telecommunications program by responding to the AT commands while opening the real connection through an alternative, user-selected tool.

PortConnector employs the same virtual port techniques found in GlobalWay's LineShare (see MacWEEK, Feb. 22). This feature emulates the Mac's physical serial ports for the benefit of older programs that can't talk to anything else so programs that can access only the modem and printer ports could be used with multipoint serial cards.

GlobalWay is at P.O. Box 1631, Campbell, Calif. 95009-1631. Phone (408) 866-4722 or (800) 262-4722; fax (408) 370-3170. □

Brio

From Page 18

ad hoc query tool will add support for Oracle7 Server for A/UX, a new relational database management system that runs on the Apple Workgroup Server 95.

DataPrism will also support connectivity through Apple's new \$995 DAL Server for A/UX and the \$149 DAL Client for Macintosh, which are required on Mac clients that access Oracle7 Server for A/UX. It will also provide client access to database-management systems from Ingres Corp., Sybase Corp., SQL Server and others.

Upgrades from Version 1.8 of DataPrism to Version 2.0.5 will be \$99. Upgrades from Version 2.0 or later will be free upon request.

Brio Technologies Inc. is at 444 Castro St., Suite 700, Mountain View, Calif. 94041. Phone (415) 961-4110; fax (415) 961-4572. □

Black Box issues all-Mac catalog

By Leonard Heymann

Pittsburgh — Macintosh managers this month are receiving the first Mac-specific mail-order catalog from communications specialist Black Box Corp.

Black Box is reselling under its own label many well-known Mac networking products from such vendors as Farallon Computing Inc. and Shiva Corp. The catalog also includes products designed by Black Box itself.

The company is launching the Mac catalog now because of the demand for products that support cross-platform networks, as well as Apple's increased effort to sell to large corporations, many of which

already buy from Black Box, said Jack Scanlan, Black Box vice president of direct marketing.

"The growth in Apple market share has been impressive and got our attention," he said.

The catalog features mainstream LocalTalk, Ethernet and token-ring offerings, as well as remote access and multimedia products.

Black Box had sales of \$125 million for the fiscal year ended March 31. It has more than 500 employees, 10 percent of whom are in support.

Black Box Corp. is at P.O. Box 12800, Pittsburgh, Pa. 15241. Phone (412) 746-5500; fax (800) 321-0746. □

Gateways

BRIEFS



GENie drops flat rate service, restructures monthly fee

Rockville, Md. — GE Information Services is restructuring the rates for its GENie on-line service, cutting hourly rates by half and eliminating flat-rate services.

Under the new rates, which go into effect July 1, nonprime-time connections will cost users \$3 an hour, with a \$9.50 hourly surcharge for prime-time use and an additional \$6-per-hour fee for toll-free service and/or 9,600-bps connections. Surcharges go into effect after four hours of prime-time usage.

The new \$8.95 a month subscription fee (formerly \$4.95) includes four hours of nonprime connect time.

GE Information Services, a division of General Electric Co., is at 401 N. Washington St., Rockville, Md. 20850. Phone (301) 340-4000 or (800) 638-9636; fax (301) 340-4488.

HyperActive gives Serius databases SQL access

Columbus, Ohio — Databases built with Serius Corp.'s development environment can now access data stored in Oracle Corp.'s SQL databases using two new Serius objects developed by HyperActive Inc.

An Oracle object defines a database connection, and a SQL object handles the communication between the Serius application and Oracle. Using these objects, Serius developers can create stand-alone, cross-platform database applications.

The Mac versions of the objects are available now for \$175 per user. Windows versions will ship later this month. HyperActive expects to ship at a later date additional objects for connecting to Sybase Inc. and Digital Equipment Corp. databases.

HyperActive Inc. is at 4425 N. High St., Suite 200, Columbus, Ohio 43214. Phone (614) 267-8800; fax (614) 267-8802.

PCon repeater multiplies ports

San Jose, Calif. — PCon Inc. next month will ship a version of its P-Shooter repeater with double the number of LocalTalk ports. It will also offer an Ethernet transceiver it said will beat current market prices.

The PS-2400 will provide users 24 LocalTalk ports in a single chassis for \$695. PCon's 12-port P-Shooter is priced at \$595. The PS-2400 performs the same as the 12-port P-Shooter, the company said, boosting LocalTalk signals as they are moved through the hub.

Next month PCon will also ship two transceivers for users purchasing a Mac with built-in Ethernet. Compatible with the Apple AUI (attachment unit interface), the ET-10 and ET-20 will be priced at \$59.95. ET-10 hooks Macs to 10BASE T networks, while the ET-20 handles thin-net cabling.

PCon Inc. is at 2984 Calle de las Flores, San Jose, Calif. 95148. Phone (408) 270-3200 or (800) 726-6462; fax (408) 274-4504.

The Simple Choice in Ethernet Adapters:



The Haves.

The Have Nots.

Dayna Has More New Features Than Any Other Cards On The Market

The company that set the standard in Ethernet connectivity with our award winning EtherPrint™ has set a new world class standard for Ethernet adapters. Check the comparison chart on our competition. Then look at the latest improvements we've made to our DaynaPORT™ line, including our new lower prices. We think you'll agree that our Ethernet cards are in a class of their own.

FEATURES	Dayna	Asanté
Card for every desktop Macintosh	✓	✓
Ethernet for PowerBook Duos	✓	
Apple Ethernet driver compatible	✓	✓
Lifetime warranty	✓	
3-in-1 Ethernet connectors	✓	✓
Media compatibility guarantee	✓	
SCSI Ethernet adapter	✓	✓
100% Apple SCSI manager compatible	✓	
Apple driver in ROM (LC cards)	✓	
Apple SNMP support	✓	
Network distribution software	✓	
24-hour repair or replacement	✓	

1. Network Distribution Software

Managers of large networks will buy Dayna for this hot new feature alone. Every DaynaPORT adapter now supports NetInstaller™, our unique distribution software. Save time and effort by distributing drivers to users across the network from one central location.

2. Apple Ethernet Driver Compatibility

Our NuBus and LC cards are fully compatible with Apple's Ethernet driver. And as an added bonus, our LC cards come with the Apple driver already in ROM, making them truly "plug-and-go."

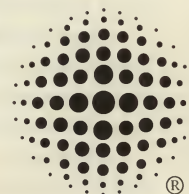
3. Support for Apple SNMP

For network managers with SNMP (Simple Network Management Protocol) management software, our cards now support AppleTalk Connection for Macintosh, Apple's new SNMP agent. All important statistics can now be reported to an SNMP console from our cards.

4. Low Price on 3-in-1 Adapters

Our single media cards start at \$229 and now our 3-in-1 models are just \$269. Which makes these remarkable Ethernet adapters the best value on the market.

For quality, value and leadership look to Dayna. And get yourself a world class Ethernet network. For fast facts on Dayna versus Asanté, call our FAX response system at 801-269-7340 and ask for document 2104.



Dayna

Macintosh Networking Specialists

News Analysis

Is Lotus Notes groupware in your company's future?

Version 3.0
with a Mac
client may
help your
employees
share
important
information.

By Michael Miley

This month's delivery of Lotus Development Corp.'s Notes 3.0 with a Macintosh client promises to change the way groupware is viewed in the Mac world. Unlike collaborative tools such as group editors and bulletin boards that automate a well-defined activity, Lotus Notes offers a sophisticated environment for developing groupware tools.

Notes has the ability to change the way a company conducts its business, which is serious business indeed. How do you decide if Notes is for you? What does it require of an organization that decides to implement it? And what are the costs, the resource allocations and the time frame involved in setting it up and educating users on its use? These are questions that both MIS people and senior management will be asking about Notes.

What is Notes? "Notes is a graphical, client-server development environment suited to a new class of groupware-enabled applications, where the tracking and sharing of information is the principal organizational goal," said Jeff Pappus, vice president of the Notes Product Division at the Cambridge, Mass.-based company. Notes differs from classical database models for data transactions because it's not data, per se, that Notes is designed to share, but information, stored in compound documents managed and distributed over servers.

"We're talking here about dynamic information exchange, where groups of people share their collective knowledge," Pappus said. "That's a different class of application than what you get with Sybase or Oracle." Although Notes has its own electronic-mail system, it also differs from E-mail in that information is not sent from point to point but can be simultaneously accessed from all points on a LAN. As such, Notes is used for developing and deploying applications such as customer tracking, status reporting, project management and information distribution, where groups of people contribute to a knowledge base.

How does it work? At the heart of Notes is a distributed document-management server running under OS/2 or Microsoft Windows, accessed by clients running under OS/2 Presentation Manager, Windows or the Mac operating system (with an OS/2 server). The user interface is common across platforms, and it uses a strategy of folders, or work spaces, where users place icons representing the databases they use — electronic mail, discussion forums, archives and so on. These databases can reside on or replicate across multiple servers, and hot links can be built to other applications outside of Notes, fully integrating them into the workgroup environment. The Macintosh client supports the same functionality as the Windows and OS/2 versions,



The Notes Workspace for the Macintosh uses file folder icons to represent available databases, such as electronic mail, discussion forums and archives.

with the exceptions of Dynamic Data Exchange and certain import-export formats. Apple System 7 features such as publish and subscribe, Apple events, balloon help, and virtual memory are supported.

Documents in a Notes database can contain any text, numbers, graphical, sound or video information that a user enters into a form, and form designs are customizable in the kinds of fields they contain or in their layout. Users can view the information these forms contain in any number of ways, (author, keyword, subject and so on), and databases may contain restrictions on any or all parts of a document, giving read-write privileges to some and read-only to others, while others might have no access at all. Views can be either private or public. More than 25 customizable templates for such applications as client tracking, discussion boards, news wires and others ship with Notes.

Administration and management of Notes is provided by a wide variety of tools, including Access Control Lists for defining users' access, rights and privileges; public and private name and address books for name management and routing; a security subsystem for ID authentication, electronic signatures and RSA public-key encryption; and a Global Database Catalog for monitoring all public databases and a Server Log for monitoring all server activity. Notes can also be administered remotely.

Version 3 brings a number of enhancements to the product. Aside from adding a Windows server and a Macintosh client, Notes now includes new ease-of-use features such as full-text search, Automatic Document Versioning, Lotus Smart-Icons, and selective replication abilities for remote or occasionally connected users (although the Mac client does not support background replication). New application development tools let applications designers set up automatic mailing of documents, multiple electronic signatures, cross-database look-ups, background macros, custom buttons, and on-screen prompts and dialog boxes. Corporate data dictionaries can be set up using its

Design Template capabilities.

Improved integration with desktop applications through Seamless Objects — files encapsulated in an OLE (Object Linking and Embedding) wrapper — lets you launch applications from inside Notes. Finally, integration of Notes with Lotus' cc:Mail includes high-level transparency between Notes mail and cc:Mail, automatic directory synchronization, support for Vendor-Independent Messaging (Lotus' VIM application programming interface for message enabling), and the option of installing cc:Mail as an alternative to Notes' internal mail system on the IBM PC and compatible side (or co-resident, but not integrated, on the Mac side).

What does it require? The process of deciding whether Notes is suited to your company is a complex one. A glance at industry use shows that Notes is aimed squarely at solving high-level business problems. "Good uses go beyond just E-mail and discussion databases," Lotus' Pappus said. "Customer services, work-flow management, expense-report consolidation — these are only a few of the ways that Notes is being used."

With power, however, comes additional IS responsibility, and companies deploying Notes have to first see to it that, wherever it's deployed, the LAN infrastructure is adequate to support it. For PC users that has often meant upgrading clients to 386 machines. Being in a Notes workgroup typically means having a 5-Mbyte or more 386 for PC clients, a 5-Mbyte or more 68020 or above for Mac clients, and a 12-Mbyte or more 386 or 486 for the Notes server, whether it's running Windows or OS/2 (the server required for Mac clients). Color is greatly preferred on all monitors (or gray scale at least, since black-and-white monitors are unusable with Notes' graphical interface).

A token-ring or Ethernet network (with the Notes servers residing on the backbone), is also typical, and although legs of a network on the Mac side can use LocalTalk, it's generally not recommended. Lotus plans support for Unix and

Some deployment tips from a Notes veteran

As manager of the North American Notes Practice for Arthur Andersen & Co. in Toronto, the world's largest licensee of Lotus Notes, Chris Andrus has successfully set up Notes at numerous customer sites. Here's some advice he has for people thinking about deploying Notes.

- ▶ The more common your platform, the better.
- ▶ You have to identify an application that solves an immediate business problem. This means going through an inquiry phase, as in data modeling. You don't want to automate some process that should be changed rather than automated.
- ▶ You're going to either pay someone for their knowledge or spend a lot of time accumulating that knowledge yourself because Notes has a long learning curve.
- ▶ If you go to outside developers, they must understand your business, be analytical and

strong enough to tell you when you're wrong, and be creative enough to come up with solutions to problems you may not have known existed.

▶ Deployment has to be supported with strong training on the executive level, and you need an executive champion if you're going to deploy Notes enterprisewide.

▶ Since development of Notes databases is iterative, you need to set up some way of capturing suggested enhancements.

▶ Understand the costs involved. For a couple of thousand dollars, you might get a small database written, while you could spend hundreds of thousands of dollars on a complex system.

▶ Understand the time involved. It may take 400 to 500 hours to set up 100 users, including infrastructure and training, or longer if you're implementing a strategic plan. — By Michael Miley

Windows NT client and server platforms, as well as Novell Inc.'s NetWare NLM (NetWare Loadable Module) server in the latter half of 1993. However, according to Scott Durgin, Notes product manager, "There are currently no plans for a server under A/UX." For a Mac-centric network, that means an investment in a 386 or 486 PC, outfitted to connect to an AppleTalk LAN. For users wary of cheap clones, that's a \$3,000-to-\$10,000 investment for the server alone.

How do you buy Notes?

Buying Notes itself, however, has never been easier. For the Mac, the OS/2 Server is \$495, and each Mac client is \$495. Lotus has also combined its value-added reseller and Notes Alliance Partner programs in a Lotus Notes Business Partners Program, expanding Notes' distribution and support channels to retailers such as Egghead Discount Software Inc.

Potential users should think carefully about whether they should buy Notes from a VAR, in consultation with a systems integrator or purchase it from a retail outlet because what they're buying is not just another productivity application but a development system for workgroups that is deployable enterprisewide. "You need to decide whether you're going to write the applications yourself or go outside," said Chris Andrus, manager of the North American Notes Practice for Arthur Andersen & Co. in Toronto, a Lotus Business Partner and the largest Notes installation in the world. This means understanding what you want Notes for. It also means having a good analysis of your current business practice and perhaps a willingness to change it. "There's nothing so inefficient as making something efficient that ought not be done at all," Andrus said.

Other consultants agree. "You've got to understand what your business mission is and be solving a real business problem," said Ken Norland, president of Distributed Systems Solutions International of Westlake Village, Calif. "It does no good to just go out and buy 30 licenses of Notes. It'll just sit there. That's why we almost never sell Notes without a custom application." In fact, DSSI usually develops three to five applications before the installation even begins.

The human factor. During the past three years, Notes VARs, consultants and users have gained a wealth of experience in deploying Notes in corporate settings. Users indicate that Notes has a dramatic effect on human interaction and that it forces organizations to rethink how they do things.

Lou Clark is a systems technologist in the Advanced Technology

How Notes is used



ILLUSTRATIONS BY JILL SPRADO

Group of the Research Computing Consortium at Monsanto Co. of St. Louis, a company whose operations extend from agricultural research to chemical manufacturing and pharmaceuticals. Clark's group provides computing infrastructure to six divisions of Monsanto and 2,500 users, half of whom are on PCs, half of whom are on Macs and a mixture of other platforms. He's been using Notes in a variety of applications for more than a year in such areas as project management, corporate auditing and tracking the status of negotiations with other companies.

"Because we use everything from desktop computers to a Cray supercomputer, our principle is to support users from an application need rather than a hardware platform need," Clark said. "Since it's very unusual to find a team that is using only one computer platform, Notes' cross-platform support was crucial."

Before Notes, group discussions were done over a variety of E-mail packages running on LANs and minis. This became very inefficient. Notes was brought in to change all that.

"When we first started talking about Notes, it was perceived as just another E-mail system, which was the last thing people wanted to hear, since E-mail was so widely abused," Clark said. "It had gotten to the point where people were shotgunning all kinds of files and memos around. People were buried, over-

loaded with E-mail. Discussions were cumbersome. People thought: Tell me something I want to know! Now such discussion is done in an ideation database. It's much more efficient. People know where to go to get the information they need."

Currently, Clark does all his development for Notes' databases on the Windows side and then makes them available to Mac Notes clients, both LAN-based ones and PowerBook users. When Mac users disconnect from the LAN, they can copy the databases they're using to their Macs and take them with them. When they reconnect, Lotus Notes can automatically incorporate any changes or additions they've made into the server copy. Integration with the LAN and the work conducted on it is enhanced by the ability to launch foreign documents embedded in Notes with their parent applications.

Not everything runs that smoothly, however. "At one point, we found that our infrastructure was a constraining aspect," Clark said. "We didn't have a lot of customers using Windows because they had 286 machines. These had to be brought up to snuff so that Notes could be utilized. You'd have to have good, dedicated systems and network people to coordinate the upgrades and the installation. This also required substantial support from Lotus. Without its systems engineer, we would have been dead in the water."

Implementing Notes was not just a technical issue but a cultural one, according to Clark. Users have to understand what groupware is. "If people aren't open to sharing, then you're in trouble. People aren't going to want to put information into a database." Deploying Notes required educating users in the processes of collaboration and training them in the technology.

Other users corroborate this testimony. "First, we put the Notes training as close as possible to the usage, so users don't forget," said a Notes manager who asked that she and her company not be identified. "These are one-and-a-half-hour introductory seminars and three-hour training sessions, scheduled during the workday. Then we've also prepared a 12-page in-house survival guide, which goes through all the basics of how to do things. Finally, we educate them in the rules and etiquette for public discussions, since past use of E-mail doesn't prepare you for this. With E-mail, you're messaging a person you know; with a Notes discussion database, you're talking with many people that you don't [know]."

Good use of Notes also meant that the company's MIS department needed some guidelines for generating databases. Initially, some 60 professionals experimented a great deal and generated more than 100 databases. The result was chaos, so they went through a consolidation effort, establishing rules for creating templates that mirrored their rules for clear, effective communication.

What's the bottom line?

Improved communication and collaboration is great, but the bottom line for corporate managers is whether it increases productivity and what the return on investment is. That investment can range from \$50,000 to \$2 million for typical Notes installations, according to Lotus' own reports, with the lower end being more typical. Using three-year base customer samples, the mean pretax rate of return for 23 customer-developed Notes applications was 395 percent, with a minimum of 15 percent. Pay-back was even more striking, according to the report: The typical project paid for itself in less than three months.

If that's true, the figures suggest that Notes doesn't depend on achieving "minimum scale" in organizations to pay off. That's good news for Mac users who are more used to incremental purchases than monolithic, top-down MIS implementations. □

The typical Notes project paid for itself in less than three months.



Sigma premieres Movie Movie

NuBus card grabs audio, 16-bit video

By Neil McManus

Fremont, Calif. — Sigma Designs Inc. this week will bring down the cost of QuickTime movie making with Movie Movie, a \$349 NuBus card that captures audio and video.

Sigma's card uses Sony Corp.'s Video Input Module to digitize 22-kHz sound and 16-bit-color video simultaneously.

The board captures 160-by-120-pixel movies at 30 frames per second and 320-by-240-pixel movies at 15 fps. It displays 640-by-480-pixel video at 10 fps and grabs full-screen still images.



Sigma Designs' new Movie Movie card captures video and audio from NTSC devices such as VCRs, televisions and camcorders.

The card conforms to the 7-inch NuBus form factor of the Centris 610 and works with all NuBus Macs. It is compatible with NTSC devices such as VCRs, televisions and camcorders.

Movie Movie ships with Sigma's

ScreenEdit capture utility, which lets users adjust audio volume and HSB (hue, saturation, brightness) of incoming video. It also comes with a video-digitizer component that gives QuickTime movie-editing programs direct control of the board.

Sigma is offering Movie Movie in a \$449 bundle with VideoShop, a \$559 QuickTime editing program from DiVA Corp. of Cambridge, Mass. Movie Movie users will get a free upgrade to VideoShop 2.0 when it ships this summer, according to Sigma.

Movie Movie will compete against VideoSpigot & Sound NuBus, a \$579 card from SuperMac Technology Inc. of Mountain View, Calif. The SuperMac card comes with Adobe Premiere Limited Edition, a low-end version of Adobe Systems Inc.'s QuickTime editing program.

Sigma Designs Inc. is at 46501 Landing Parkway, Fremont, Calif. 94538. Phone (510) 770-0100; fax (510) 770-2640. □

Finale scores with new interface, playback controls, arrangements

By Kirsten L. Parkinson

Eden Prairie, Minn. — Coda Music Technology next month will ship Finale 3.0, an upgrade that adds floating tool palettes and new templates to the \$749 music-notation package.

Finale lets users create and print complex musical scores as well as play back their music via a MIDI (Musical Instrument Digital Interface) interface and instrument.

New features in Version 3.0 include:

► **Redesigned interface.** Users can now open more than one score or multiple views of a single score simultaneously. Previous versions permitted only one window to be open at a time.

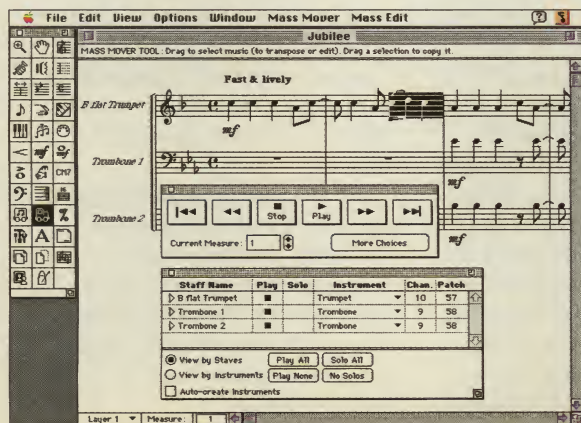
Finale 3.0 offers floating tool palettes that users can resize and reconfigure to show only certain tools. A message bar at the top of the document explains the function of a selected tool.

► **More templates.** The upgrade adds 28 new score templates for a total of 35. Each template provides a preset layout, such as staves, margins and page size, for a specific kind of arrangement. New templates include instrumental solos with piano, full orchestra, marching band and two-part vocal pieces with piano.

► **Playback improvements.** A new playback control window has buttons that resemble those on a

See Finale, Page 26

Finale 3.0 from Coda Music Technology offers new playback controls and an instrument list for assigning MIDI channels to specific musical staves.



Mustek's Paragon scanner series features handheld, flatbed units

New 1,200-dpi model captures 24-bit color

By Matthew Rothenberg

Irvine, Calif. — Mustek Inc. this month announced a scanner family that comprises two new color flatbeds and two repackaged versions of the company's handheld models.

All the scanners in Mustek's new Paragon series are based on proprietary CCD (charge-coupled device) engines.

► **The Paragon 1200**, slated to ship by fall for \$1,995, scans legal-size images in 24-bit color, eight-bit gray scale or monochrome at an optical resolution of 1,200 by 600 dpi. Resolution can be raised to 1,200 by 1,200 dpi via hardware interpolation, Mustek said.

The scanner captures eight bits each of RGB (red, green, blue) data per pixel in three passes. Mustek said the Paragon 1200 includes an NCR chip that speeds scanning by almost 50 percent and can capture images at a rate of 3.6 milliseconds per line.

The device will ship with a SCSI interface and cable. Image controls include 32 gamma curves, 12 halftone patterns, and 256 levels of brightness and contrast. The scanner supports the Twain application programming interface standard for direct software links to compatible input devices.

The Paragon 1200 will come bundled with the complete version of Adobe Photoshop 2.5,

Adobe Systems Inc.'s \$895 image-editing program.

Mustek originally announced that the Paragon 1200 would ship in February (see MacWEEK, Nov. 9, 1992). Delivery of the scanner was delayed by contractual obligations with another company, Mustek said, although it declined to provide details about the contract.

► **The Paragon 600**, due in July for \$1,395, is a 24-bit-color flatbed that offers capabilities similar to that of the Paragon 1200 but has an optical resolution of 600 by 300 dpi, which can be increased to 600 by 600 dpi via interpolation.

The Paragon 600 will ship with the stripped-down LE version of Photoshop 2.5; users will be able to purchase the complete version of the software from Adobe for \$295, Mustek said.

► **The Paragon Color**, slated to ship in July for \$699, is a repackaged version of Mustek's CG-8000 handheld scanner, which can capture 24-bit-color or eight-bit gray-scale images at a maximum resolution of 800 dpi. The SCSI device will come with Photoshop 2.5 LE.

► **The Paragon 256**, scheduled for release in July at a price of \$399, is a version of the company's GS-800, a handheld device that can scan line art or halftones at 800 dpi and eight-bit gray scale at 400 dpi. It will also ship with Photoshop 2.5 LE.

Mustek Inc. is at 15225 Alton Parkway, Irvine, Calif. 92718. Phone (714) 453-0110 or (800) 468-7835; fax (714) 453-1010. □

Showplace 2.0 reaches out with net rendering

By Neil McManus

Richmond, Calif. — Pixar next month will soup up its 3-D scene-building program with network rendering and a surface editor.

Showplace 2.0 will remain priced at \$695. Pixar will also offer a \$495 CD-ROM version with on-line documentation instead of a printed manual. New features include:

► **NetRenderMan.** This bundled utility, which retails separately for \$650, lets Showplace users offload rendering tasks to other Macs on a network. The program also includes MacRenderMan, which uses procedural shading to

generate photo-realistic images.

► **Glimpse.** Showplace owners can use this bundled utility to edit Looks, or surface images. Glimpse, which carries a \$150 retail price, lets users control the color, opacity and anti-aliasing of a surface via scroll bars and pop-up menus.

► **Performance increase.** Version 2.0 offers faster screen redraw of objects in box, sketch and full-detail views. Users can now adjust the quality of shadows for faster rendering.

► **More clip objects.** Pixar has added about 5 Mbytes of clip objects, including furniture, 3-D charts, industrial tools and musical

instruments.

► **Plug-ins.** The program now comes with plug-ins that generate and modify objects such as rooms, stairs and Venetian blinds.

► **Import.** Version 2.0 imports DXF (Drawing Interchange File) files, allowing users to work with models created in CAD programs.

Additional new features include Mac Clipboard support for rendered objects and the ability to nudge objects with the arrow keys.

Upgrades are \$150.

Pixar is at 1001 W. Cutting Blvd., Richmond, Calif. 94804. Phone (510) 236-4000; fax (510) 236-0388. □

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Trumatch adds EfiColor to matching app

By Matthew Rothenberg

New York — Trumatch Inc. has extended the spectrum of its color-matching system with an upgrade that features device-independent color management from Electronics for Imaging Inc.

Like earlier versions, Trumatch ColorPrinter Software 2.1 outputs a reference guide of swatches from users' color PostScript printers. By comparing a printer's output to the

company's Colorfinder fanbook of 2,040 CMYK (cyan, magenta, yellow, black) process-color swatches, users can determine how closely their color comps match four-color press output (see MacWEEK, Sept. 14, 1992).

Version 2.1 also includes EfiColor, software technology from San Mateo, Calif.-based EFI that uses device profiles to optimize the accuracy of color output. Trumatch ships the software

with profiles for the Canon CLC 500 color copier and the QMS ColorScript 100 thermal-wax printer; users can purchase additional profiles from EFI for \$129 to \$529 each.

Trumatch ColorPrinter Software 2.1 and the Colorfinder fanbook are available now for \$98 and \$85, respectively. Users can buy both the software and book for an introductory price of \$133, and software upgrades are free to owners of earlier versions.

Trumatch also said next month it plans to ship Trumatch ColorPrinter Software 3.0, which will add support for Apple's ColorSync extension for system-level color matching. Upgrades to Version 3.0 will be free to current owners of the Trumatch software.

Trumatch Inc. is at 25 W. 43rd St., Suite 802, New York, N.Y. 10036-7402. Phone (212) 302-9100 or (800) 878-9100; fax (212) 302-0890. □

Kudo upgrade supports DCS, CMYK files

By Kirsten L. Parkinson

San Diego — Impace Systems Corp. this month logged in a Kudo Image Browser upgrade that supports Desktop Color Separation files.

Like earlier versions, Kudo Image Browser 1.0.4 lets users store thumbnails and comments for up to 32,000 graphical images.

Users can create catalogs of images stored on their own hard drives, networked volumes or CD-ROMs.

Version 1.0.4 adds support for several file formats, including DCS, TIFF and Adobe Photoshop CMYK (cyan, magenta, yellow, black), Photoshop 2.5, Aldus FreeHand 3.11, and Scitex CT.

A new export feature lets users save catalog information as tab-delimited ASCII text and export it

to other applications. For example, service bureaus can export the text into a program such as ElseWare Corp.'s DataShaper for inclusion on contact sheets.

Version 1.0.4 also offers a faster delete feature than earlier versions. When a user selects a thumbnail for deletion, Kudo Image Browser marks the entry and deletes all the marked thumbnails simultaneously when the program is closed. The previous version deleted each thumbnail when it was selected.

Other new features include scroll bars for viewing large expanded images and the ability to search images by file type.

Upgrades are free.

Impace Systems Corp. is at 4747 Morena Blvd., Suite 360, San Diego, Calif. 92117. Phone (619) 272-2600; fax (619) 272-4292. □

Finale

From Page 24

tape deck for playing back a MIDI version of the score. The program also adds an instrument-list window where users can assign a MIDI playback channel to each staff of music.

► **Smart articulations.** When applying articulation marks, such as staccato or accent marks, Finale 3.0 automatically positions the mark in the correct place on the note head. When the stem direction of a note changes, the program automatically adjusts the accent mark as well.

Other new features include object-oriented drawing tools, the ability to select partial measures for editing, and TrueType as well as Type 1 versions of notation fonts.

"It's astonishing how much improvement [Coda] has made," said Peter Miller, owner of New York-based Miller Music Service, which creates printed scores for Broadway shows. "For example, Finale used to have an add-on for making adjustments to articulations. It involved an extra step, and you really had to know your math because there were a lot of numerical commands in there."

"It's now possible to just indicate what articulations you want on what note, and with just a couple of commands, you can place them," he said.

An educational version of the program will list for \$250. Upgrades are \$99; users who bought Version 2.6.3 after Jan. 1 can upgrade free.

Coda Music Technology is at 6210 Bury Drive, Eden Prairie, Minn. 55346-1718. Phone (612) 937-9611 or (800) 843-2066; fax (612) 937-9760. □



FROM THE Bookshelf

Several publishers offer books to help users understand digital photography and master Adobe Photoshop. The titles listed here are not necessarily recommended by MacWEEK, but we think you may find them helpful.

Digital photography: Pictures of tomorrow

By John Larish

A guide that takes the reader through each stage of the digital photography process, this book covers everything from image capture and storage to photo manipulation and printing. Each chapter includes case studies of practical applications.

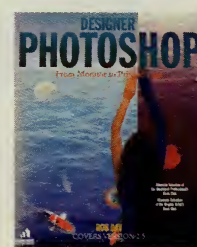
\$27.95 / 224 pages / ISBN 0-941845-08-7

Micro Publishing Press

21150 Hawthorne Blvd., Suite 104, Torrance, Calif. 90503

Phone (310) 371-5787

Fax (310) 542-0849



Designer Photoshop

By Rob Day

This how-to book on Adobe Photoshop 2.5 covers importing files from Adobe Illustrator, choosing colors and creating color separations. A special section covers masks, including filters and glows.

\$30 / 250 pages / ISBN 0-679-74394-4

Random House Inc.

201 E. 50th St., New York, N.Y. 10022

Phone (212) 751-2600 or (800) 726-0600

Fax (212) 872-8233

Digital Photography

By Mikkel Aaland and Rudolf Burger

Using easy-to-understand language, this guide to digital photography technology contains an in-depth glossary defining the medium's jargon. The book also includes a buyer's guide.

\$20 / 209 pages / ISBN 0-679-74260-3

Random House Inc.

201 E. 50th St., New York, N.Y. 10022

Phone (212) 751-2600 or (800) 726-0600

Fax (212) 872-8233

The Photoshop Wow! Book

By Linnea Dayton and Jack Davis

This book explores new features of Adobe Photoshop 2.5 using artwork created with the program to illustrate salient points. It comes with a disk of effects filters and sample textures.

\$35 / 250 pages / ISBN 1-56609-004-0

Peachpit Press Inc.

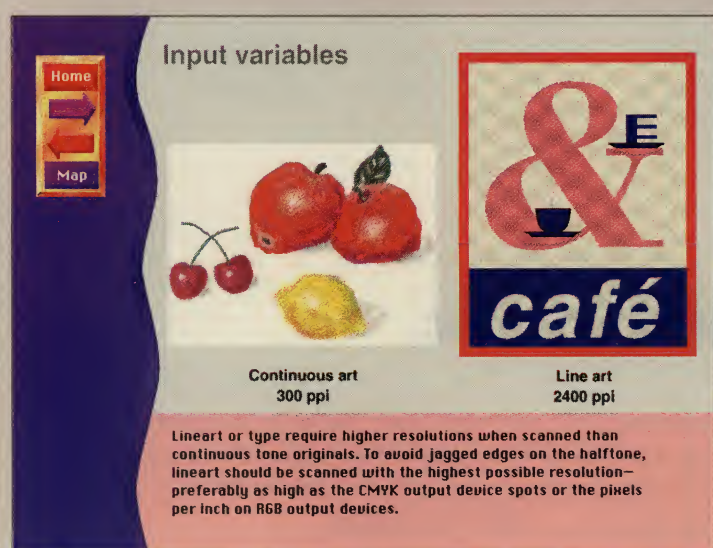
2414 Sixth St., Berkeley, Calif. 94710

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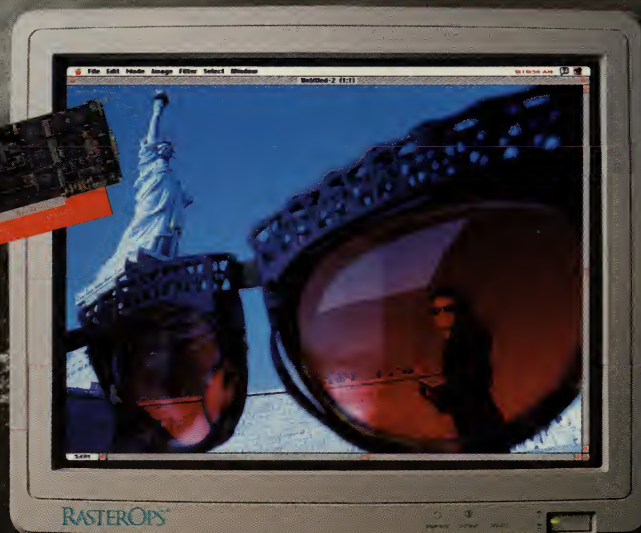


San Francisco — If dpi, lpi and ppi make your head swim, Pixel Ink Consultants has a cure: an interactive tutorial disk that describes the finer points of resolution. The Pixel Ink Resolution Disk, available now for \$32, is designed to help desktop designers understand resolution requirements for scanners, output devices and monitors. It also covers related topics such as file size, resampling and banding in blends. The interactive tutorial, created in Macromedia Director, lets users select various resolution settings and see how they affect other variables. Pixel Ink Consultants is at 520 Frederick St., Suite 13, San Francisco, Calif. 94117. Phone (415) 564-0962; fax (415) 564-9677.

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High-tech companies head south

Apple, others support NAFTA trade accord

By Jon Swartz

Mexico City — The North American Free Trade Agreement may have hit a snag in Congress, but Apple and other U.S. high-tech companies already are voting with their pocketbooks, opening new operations or expanding existing ones in Mexico.

Computer companies broadly support the treaty's goals of lowering trade barriers, but industry executives said their interest in doing business inside Mexico preceded it.

"We are a global industry in a borderless world," said Dave Barram, vice president of world-

The Mexican PC market



- Nearly \$1 billion in 1993 sales
- 29 percent growth in sales
- Installed base of about 1.9 million machines by end of 1993
- 25 percent growth in units shipped

wide corporate affairs and public policy for Apple, which supports NAFTA and last month announced it was opening a sales operation in Mexico to cash in on the fast-growing market (see MacWEEK, April 26).

NAFTA — a pact to phase out tariffs on trade among the United States, Canada and Mexico — was signed by President Bush before he left office. It requires approval in

Congress, where it has been criticized by environmental and labor groups. Mexican and U.S. officials are negotiating add-on agreements urged by President Clinton to address environmental and labor concerns.

But high-tech companies already have benefited from stiffer competition among Mexican businesses and a more open market.

See Mexico, Page 30

Schools criticize Apple for cut in number of K-12 resellers

By Reese Erlich

San Francisco — School administrators are complaining strongly about a new Apple program that has sharply reduced the number of dealers selling and repairing Macs for K-12 schools.

Until this spring, school districts could select from about 350 resellers. On April 1, however, Apple reduced that number to 19 as part of a cost-cutting measure, and some Mac managers said the changeover has resulted in product backlogs and busy phone lines.

Joe Eaione, director of instructional technology for New York Public Schools, called the reduction in education representatives as bad a "crisis as I've had in 11 years. Some people want to just cancel Apple orders; that's how frustrated they are."

Barry Waitte, director of business operations for Apple's education division, defended the new system as more efficient and a better bargain for users. While the number of dealers has decreased, he said, more sales and repair people are

See Education, Page 30



Sam Dederian, educational technology administrator for San Francisco schools, isn't completely satisfied with Apple's new education reseller program.

NetWare 4.0 sales boost Novell profit in second quarter

By Jon Swartz

Provo, Utah — Capitalizing on initial shipments of NetWare 4.0 and strong surges in product upgrade revenue and licensing fees, Novell Inc. posted a sharp jump in quarterly profits and sales.

The networking company reported a profit of \$80.5 million for its second quarter ended May 1, up 31 percent from \$61.3 million in the same quarter a year ago.

Sales rose 25 percent to \$280.7 million, from \$225 million a year earlier.

Industry observers said the results cement Novell's dominance of the lucrative file server market.

"This provides further evidence that Novell owns the file server market — no question," said Craig Burton, a former Novell executive and president of The Burton Group Inc., a network consulting company based in Salt Lake City. "I don't care if you're Microsoft or IBM — you have to deal with them in that market."

Burton said he expects NetWare 4.x sales to "be exceptionally strong" for the next two financial quarters. □

Central Point ironing out details of acquisition of util maker Maxa

By Jon Swartz

Beaverton, Ore. — Central Point Software Inc. is close to signing an agreement to acquire Maxa Corp., according to sources involved in negotiations.

Talks between the companies have been going on for weeks, and some details remain to be ironed out, sources said. An announcement could come as early as this week.

Maxa, based in Glendale, Calif., markets a utility called Snooper, which is designed to diagnose Macintosh hardware problems, and Alert!, a utility that identifies and in some cases corrects software incompatibilities and configuration problems.

Industry observers said Maxa has been on the block for months for a steeply reduced price but found no takers. Symantec Corp.,

for example, reportedly talked to Maxa about a possible acquisition last month.

Maxa and Symantec officials declined to comment on those reports.

While it was looking for a buyer, sources said, Maxa has remained profitable, with back orders on the rise.

Nonetheless, Maxa has laid off most of its 60 workers. The company now employs fewer than 10 people.

A spokeswoman for Central Point Software, based here, declined to comment on the rumored buyout. The 345-person company, which specializes in popular utility software such as MacTools Deluxe 2.0 and Anti-Virus for the Macintosh, reported sales of \$84 million for its fiscal year 1992. Central Point is privately held. □

Stock Watch

05.26.93 CLOSE WEEKLY % CHANGE

Apple 57.75 0.87

SOFTWARE DEVELOPERS

Adobe 70.75 3.28

Aldus 16.00 -5.88

Caere 8.00 0.00

CE Software 3.63 -3.33

Microsoft 95.25 2.97

Novell 29.88 -5.16

Symantec 18.13 3.57

PERIPHERALS VENDORS

CMS 3.50 33.33

HP 86.25 -1.71

QMS 16.25 3.17

Radius 3.50 -6.67

RasterOps 8.25 24.53

Sigma 5.25 -8.70

SuperMac 22.00 26.62

STORAGE

Conner 12.00 -8.57

Maxtor 7.13 -12.31

Quantum 12.63 -8.18

Seagate 16.75 -1.47

SyQuest 13.25 1.92

INDUSTRY INDICATORS

DEC 45.25 -5.24

IBM 52.75 6.30

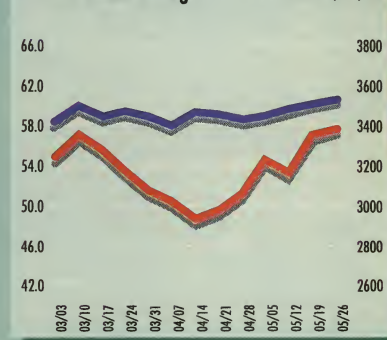
Motorola 82.63 3.12

Sun 30.63 6.99

Dow Jones 3540.16 1.15

Compiled by Nordby International Inc.

Apple stock price 57.75 on 05/26/93
Dow Jones average 3540.16 on 05/26/93



Novell slips despite good quarterly results



Novell Inc.'s stock slipped 5 percent to \$29.88 per share last week even though the company reported stellar results for its recently completed quarter (see story, this page). For the first half of fiscal year

1993, the Provo, Utah-based networking company registered a profit of \$151.3 million, up 33 percent from \$113.5 million last year. Sales increased 26 percent to \$540.9 million, from \$429.9 million last year.

Some Things You Should Know About Networking.

Sonic Systems offers the most complete line of Macintosh networking hardware and software solutions. Everything from Ethernet cards to software that can manage them and all of the other devices on your Mac network.

Server Sentry

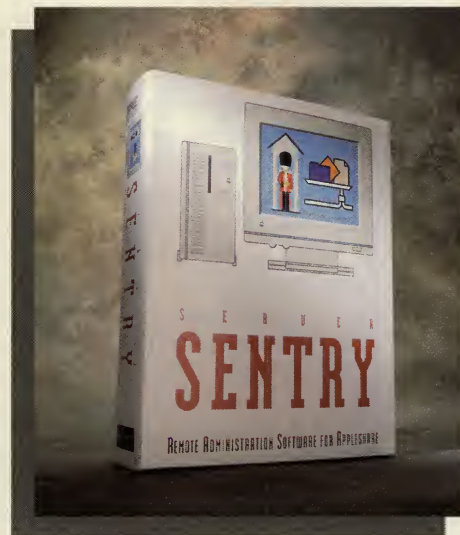
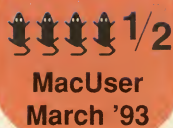
Did you ever wish you could manage all of your AppleShare servers from YOUR Mac instead of walking over to each server? Well, Server Sentry lets you do just that. In fact, Server Sentry is capable of many more things *remotely* than AppleShare Admin. does *locally*.

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Bridge Series

What do you do with your LocalTalk devices (like printers, PowerBooks, etc.) when you migrate your



Remote AppleShare Management



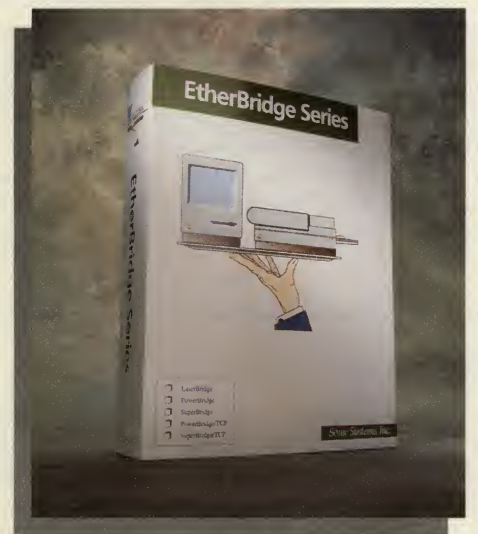
Remote Macintosh Management

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Strata buys 3-D developer

St. George, Utah — Strata Inc. this month added another dimension to its 3-D software lineup, buying Extend Corp. for an undisclosed sum.

Extend, a private company based in Santa Clara, Utah, is the developer of REND•X, an extension for StrataVision 3d that lets Mac, DOS

and Unix users save model files for rendering with Pixar's RenderMan products.

Strata bought AIM Graphics Inc., a St. Louis-based developer of 3-D modeling and animation software, for an undisclosed amount in June 1992. □

Mexico

From Page 28

Apple Computer Mexico last month announced it will open a marketing and channel-development office here to provide service and support to resellers, software developers and technology partners.

And Hewlett-Packard Co. of Palo Alto, Calif., which manufactures printers and other products at a plant in Guadalajara, is lobbying Congress to approve the treaty.

In fact, the number of computer companies with operations in Mexico has jumped from "about half a dozen" in 1989 to more than 70 today, said Eric Prothero, senior analyst for Latin America research at International Data Corp., a market research company based in Framingham, Mass.

Personal computer sales in Mexico are projected to increase 29 percent to nearly \$1 billion in 1993, according to Prothero (see chart, Page 28).

Allen White, director of Apple Latin America, said the free-trade treaty would boost investment in Mexico, especially in the first few years. But he said expansion south of the border would continue with or without it. "I don't think Mexico is going to come to a screeching halt if NAFTA is not approved," he said.

Environmental groups have said NAFTA, as written, would allow U.S. companies to move operations that pollute the land and water to Mexico to avoid U.S. regulations.

Labor groups, including the Teamsters union, have asked Clinton to dump the accord. They say it lets U.S. employers hire Mexican workers at low wages and skimp on workplace safety.

An HP spokesman denied the company set up its Guadalajara plant to avoid paying U.S.-level wages or to avoid environmental controls. "Labor costs are a small factor [there]," he said. □

Apple takes on Russian frontier with '1984' ad

Moscow — Apple is appealing to Russians' long memories and personal computer tastes in a re-edited version of its classic "1984" TV ad.

The company last week aired the 60-second commercial, which depicts an Orwellian society, for the first time here as part of an ambitious marketing push in Russia, the Baltics and the Commonwealth of Independent States. The ad was seen by an estimated 100 million people, Apple said.

"For more than 20 years, Europe, Asia, America — the whole world — all toiled under the dominance of one personal computer system," the revised ad begins. "A system whose inflexibility discouraged independent thought and personal creativity. A system whose power went unchallenged. Until Apple created Macintosh."

"The right to choose. The right to think. The right to be an individual. Apple Computer now in Russia and the Commonwealth of Independent States."

In addition to the ad, Apple said it is expanding its reseller base in the former Soviet Union. Apple currently has more than 50 resellers in the region. □



Business

BRIEFS

Apple starts Unix VAR drive

Campbell, Calif. — Just two weeks after announcing plans to bring Mac applications to high-powered Unix workstations, Apple USA, based here, last week kicked off a drive to sign up Unix resellers.

As an incentive, Apple will give dealers a free Quadra 800 workstation with A/UX 3.0, an external CD-ROM, keyboard and monitor for every three A/UX servers — the Apple Workgroup Server 95, Quadra 950 or Quadra 800 — they sell.

The promotion runs through Dec. 31.

Apple USA, Wal-Mart sign distribution deal

Bentonville, Ark. — Apple USA last week landed the biggest fish yet in its one-year campaign to sell Macs through mass merchants.

Wal-Mart Stores Inc., the nation's largest retail chain, with fiscal year 1992 sales of \$43.9 billion, has announced it will carry a version of the Mac LC II-derived Performa 400 at 500 stores immediately and at about 1,400 by year-end.

The retail giant, based here, will offer a 4/80 configuration of the 68030-based Performa 400, which includes a 14-inch color monitor, keyboard, and software such as System 7 and ClarisWorks.

A company spokesman said individual Wal-Mart stores will determine pricing for the Performa 400.

Battle with Microsoft prompts Stac to lay off 40

Carlsbad, Calif. — Bracing for a court battle with Microsoft Corp., Stac Electronics last week announced the layoff of 20 percent of its employees — about 40 people — and a reorganization.

The data-compression software maker, based here, said the shake-up was a result of declining sales because Microsoft's MS-DOS 6.0 has driver-level compression built in. Stac is suing Microsoft for patent infringement.

For its second quarter ended March 31, Stac announced profits of \$1 million, compared with \$4.2 million in the same quarter last year. The company posted sales of \$11.2 million, down from \$11.7 million last year.

Changes paying off for distributor Merisel

El Segundo, Calif. — Mac distributor Merisel Inc. reported a 53 percent jump in profits this month after revamping its sales force, stepping up customer service and controlling expenses worldwide.

Merisel earned a record \$6.4 million during its first quarter ended March 31, compared with \$4.1 million in the same period a year ago.

Revenue was a record \$692.5 million, up 42 percent from \$487.1 million a year ago.

Education

From Page 28

actually on the street under the Apple Education Sales Agents plan.

Under AESA, Apple assigns sales agents by geographic areas. One dealer, for example, covers all of California. Another dealer may handle repairs, although districts can also choose alternate methods such as in-house service or remaining with their old reseller.

Since 1982, school districts had bought Macs for one price that included installation and training.

Now many "high-end customers want to do it themselves," Waitte said, explaining why AESA customers can either buy just a Mac or pay extra for installation and training.

While Mac managers at schools commended that part of the program, many expressed serious misgivings about the rest of the new program.

A single, toll-free number for sales and support has been split into several "800" numbers, which are frequently busy, according to Mac managers. LeRoy Finkel, director

of media services for San Mateo County schools in California, called the new system "1-800-BUSY." Apple just "didn't anticipate the number of calls," he said.

Districts used to working with a particular dealer may now be starting fresh with an unfamiliar company. Sam Dederian, educational technology administrator for San Francisco schools, said his district's new representative won't hook up the Macs to any non-Apple equipment — something the old representative did. The new repair vendor now charges a \$10 pickup fee per warranty repair, Dederian said, because the company is located 40 miles away.

Some Mac managers praised the new program, however. Mike Burns, director of technology for Ralston Public Schools near Omaha, Neb., said his employees haven't had problems with busy numbers and he's happy with the work of new agents.

Mac managers interviewed said Apple had good intentions with AESA and they hope the kinks can be worked out. Although Eaione termed the current implementation of the program a "major headache," he quickly added, "the concept could work." □

MacWEEK index

MICROSOFT EXECS CASH IN

Executives at Microsoft Corp. cashed in big — for \$117.5 million — during a recent two-day stock trading session, according to Securities and Exchange Commission filings.

EXECUTIVE	SHARES SOLD	AMOUNT
Bill Gates	1.1 million	\$95.5 million
Paul Allen	200,000	\$16.9 million
Bernard Vergnes	40,000	\$3.4 million
William Neukom	10,000	\$860,000
Jonathan Lazarus	10,000	\$820,000

Source: Securities and Exchange Commission.

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EDITORIAL

Apple in age of high-powered OS

This month has seen an unprecedented flurry of operating system activity in the Intel-standard side of the microcomputer world.

NeXT Computer Inc. and Sun Microsystems Inc. delivered versions of NeXTstep and Solaris, respectively, for 486- and Pentium-based machines. IBM Corp., apparently still seeking to regain control of the PC standard it once defined, revealed plans to market its own version of DOS (complete with yet another GUI) even as it was putting the finishing touches on a well-received upgrade to OS/2. And Microsoft Corp., seemingly unfazed by any of this, managed to turn last week's Comdex/Spring '93 and Windows World into a giant pep rally for its upcoming Windows NT.

Mac managers watching their PC brethren trying to steer through this maze aren't likely to feel deprived just because they don't have as many OS options. With the exception of NT, most of these new systems probably won't have much more success than previous attempts to free the PC from DOS and Windows.

But there is an important lesson for Apple in all this: The bar keeps rising in the OS arena, and if the company isn't careful, the system software that was once the crux of "the Mac advantage" could become the opposite. Specifically, an increasingly cluttered and confusing interface could use a serious reassessment. There's been little progress in beefing up the platform's security. And with buzzwords like "collaboration," "multimedia" and "client-server" becoming realities, Mac users require the kinds of industrial-strength underpinnings — pre-emptive multitasking, multithreading and memory protection — that the new PC systems promise.

Perhaps Apple can make the needed improvements within the framework of the Mac OS; perhaps the answer is PowerOpen; or perhaps we have to wait for the bright pink future under development at Taligent Inc. One way or another, Apple needs to demonstrate that it has the will and the wherewithal to deliver system software that's up to the demands of the times. □

Commentary

Au revoir to Jean-Louis, and merci beaucoup

Jean-Louis Gassée, former Apple Products president, has been giving us the benefit of his experiences since Dec. 18, 1990. Now we must bid Monsieur Gassée adieu. We've selected a handful of highlights from his past columns, which we at MacWEEK have come to call "Gassée-isms."

On Newton. Skeptics might call the first Newton a pen-based personal information manager designed in California — read a trendy but irrelevant gadget. Supporters are likely to hail Newton as the wave front of the next computing revolution.

Ultimately, normal people, a.k.a. consumers, will decide which it is.

Desperately seeking significance.

These days, new product announcements come neatly wrapped in conceptual paper, tied with bright, new paradigm bows. Stat-ing what the product does isn't enough anymore — you have to explain its importance on a cosmic scale.

On PowerPC. Nobody has ever played this game (moving to a new processor platform) quite at the level of difficulty Apple has set for itself. But, for all its troubles, it is a fair course for the company to be following, especially since its many past mistakes have forced this strategy upon it.

Microsoft phobia. The problem with Microsoft bashing is not that there is a lack of reasons for it. The problem is that maligning Microsoft Corp. is not going to make the company go away.

The power. Looking at Apple's overall performance, it looks like much, if not most, of the company's revenue and unit growth came from the portables. In effect, Apple is taking a leadership position in the most dynamic segment of our industry, but the desktop business looks a little tired. It appears that the booming sales of expensive portables didn't conquer many new customers. Let's hope even sharper PowerBooks will have an effect on DOS users, enabling Apple to claim market-share gains on all fronts.

On System 7. Apple can make it easier for developers to modify, extend or even replace the Finder. True, this represents a nontrivial effort. But the rewards could be even larger: a better product, more good will from the developer community and opportu-

nities for Apple executives to gloat like Bill Gates.

On alliances. In one year, Apple has managed one of the swiftest and most profound image

make overs ever performed in corporate America. That's not an easy accomplishment in a field crowded with image navigators and federation makers.

It is an important change as, sometimes, perception must precede reality to convince others to join and implement a vision.

Wishes for 1993. There are some fairly obvious gifts we could place under Apple's tree — besides more PowerBook 180s and Quadra 950s. For instance, one could hope for a little more clarity in the Mac product line — there are just too many Mac models out there. Others, unimpressed by System 7.1, might wish for better system software.

I wish for a little dash of adversity. It's good for the soul. As Victor Hugo, the great Gaelic bard, once said, "Adversity makes men; prosperity makes monsters."

Happy New Year!



JEAN-LOUIS GASSÉE

Watch for the premiere of MacWEEK's round-robin commentary next week.

LETTERS



Trumatch offers total solution for modern digital designer

In the story "Color-swatch systems battling for user loyalty" (MacWEEK, May 3), MacWEEK draws the easy conclusion that Pantone Inc. has enjoyed virtual monopoly status in the color-matching marketplace. That conclusion ignores the importance of the four-color market, which has become the dominant segment in graphic arts publishing, and should be considered separately.

Designers should be selecting process colors for accurate matching in four-color printing because half of solid-ink colors are unachievable in four-color printing — a major mismatch for process-color printing. Pantone is not the force in four-color specification that it has been in solid-ink color matching. It is actually the most-recent entry.

Also, Trumatch is the only digital system for today's four-color digital graphics. Focoltone Ltd.'s marketing executive was quoted talking loosely about printers' realities and suggesting that "to hold a 5 percent dot is difficult; less than 5 percent is nearly impossible." Perhaps that statement fits its product positioning best, as its system is made of tint screens in 5 percent increments. However, Trumatch was created for electronic image setters, who all rely on output resolution in 1 percent (such as digital) increments.

Although the story does allude to the fact that Trumatch displays 40 perfectly proportioned process tints and shades of 50 hues plus four-color grays, it virtually ignores the tight logic and organization that makes the Trumatch System so intuitive. By creating and having patented the only truly digital four-color matching system, Trumatch uniquely provides a critical design benefit: the ability to choose lighter and darker colors with no shifting in color cast.

Readers should be aware that Trumatch is wholeheartedly endorsed by the four-color experts, including Scitex America Corp., Linotype-Hell Co., Du Pont Imaging Systems, Rochester Institute of Technology and Graphic Arts Technical Foundation, the printing industry's troubleshooters.

We especially take issue with the conclusion of the story, which includes a quote that "digital color models like Trumatch are not meant for offset printers but for color output devices to come."

We are just introducing Trumatch ColorPrinter Software, which includes Electronics For Imaging Inc.'s EfiColor color management and Apple's ColorSync, because digital proofing devices are still far less precise than four-color presses. The software creates a Reference Guide

that will help designers get their colors right on their comps.

Steven J. Abramson, president
Trumatch Inc., New York

Author Michael Roney replies: Trumatch is indeed a sophisticated process-color matching system designed for the digital age, and many of Mr. Abramson's perspectives are duly represented in the story. We even quoted a printer as saying that matching 1 percent tints is no problem. Our point is that although Trumatch gives designers more precision and flexibility, most printers are still going to match process spot colors with swatches and CMYK (cyan, magenta, yellow, black) specifications, regardless of the system used to choose them. Trumatch becomes more of a total solution in full digital environments.

LaserMaster: TurboRes blurs the question of 600-dpi res

The story "Resolution confusion: What is 'true' 600 dpi?" (MacWEEK, April 26) in the special report on printers implies that the frame buffer can be used as a way to understand the "true" resolution of a laser printer. In fact, storing information in the frame buffer may or may not be a good indication of resolution. It does, however, always take more of the printer's memory and always slows printing speeds.

LaserMaster Corp. has been awarded U.S. patents on our technology for emulating and achieving effective resolutions comparable to and, in many cases, superior to those that could be achieved through the simple imposition of additional dots. This technique is called TurboRes.

With LaserMaster's TurboRes resolution-enhancement approach, additional information needed by the printer controller to improve imaging in the vertical dimension is actually encoded into the page buffer by software at the time the page image is created. The controller uses this encoded information to determine the vertical placement of pixels on the page, which allows our technology to achieve essentially infinite adjustment of pixel height in the vertical direction.

Technology aside, there is only one "true" way to determine whether the resolution of a printer meets your expectations: by looking at some actual output. By that standard, LaserMaster's Unity 1200XL Plain-Paper Type-setter has no equal.

Larry Lukis, chief technical officer
LaserMaster Corp.
Eden Prairie, Minn.

Send letters to MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105. MCI 323-1203; Internet, letters@macweek.ziff.com; fax (415) 243-3650. Include your name, address and phone number. Letters should not exceed 300 words. We reserve the right to edit for clarity and length.

The Mac Manager

If Apple forgets the Finder, its future is in jeopardy



DON CRABBE

One of life's truisms is that if you worry about the details, the rest will fall into line. Lately, Apple's been so worried about "the rest" that it's paying little attention to the details. Specifically, Apple's just not paying attention to its No. 1 detail, the Finder.

Since the introduction of the System 7 Finder two years ago, we've seen no serious improvements from Apple in the way its signature graphical user interface works. But the Finder's competition has not stood still. Snicker if you will, but Windows is getting better. So are Motif and the other Unix GUIs.

Apple is intending many resources to improve its underlying system services. Making that system work on PowerPC and Intel CPUs, while adding the likes of QuickTime 1.6, QuickDraw GX, AppleScript, AOCE (Apple Open Collaboration Environment) and Amber is impressive stuff, to be sure. Not to mention Apple's latest initiative: the development of the so-called Macintosh Application Systems that will allow any Mac application to run without modification in an X Window on a Unix box.

But none of these new and improved system services *directly* improves the Finder. Although these services will allow a Mac to do more things in more intelligent ways, which indirectly makes the Finder more powerful, I'm talking about a fundamental enhancement in the way that we interact with our Macs.

Finding a new Finder. It's as if Apple has lost track of its interface soul. In an effort to extend the Mac into new domains with whiz-bang services, that most basic of Mac constructs has gotten short shrift. It's time for Apple to re-dedicate itself to finding a new Finder.

Projects that have long held hope for an

improved interface now seem locked into permanent alpha testing. Consider Casper, Apple's much ballyhooed sound-command technology. It's still a no-show.

Some in Apple even say that a new Finder isn't needed, especially with the Mac moving from an application orientation to one centered on compound documents. Indeed, that's supposed to be the whole point of the Amber technology.

Unfortunately, we're years away from compound documents that are so smart we hardly have to worry about manipulating them. In the interim, people will still command their Macs by using pull-down menus and mouse clicks.

Tangible improvements. We desperately need basic Finder improvements. File copying and Trash emptying are still far too slow. We lack Finder commands for services that other GUI users take for granted. The multilevel command maze you have to master just to use stuff like file sharing is a major drag. And the underlying file system is starting to creak badly. Sadly, the potential interface benefits promised when the System 7 Finder was first delivered have largely failed to materialize.

Nor is the answer to our Finder problems to be found by adding more extensions and control panels. My own system gets patched by so much code at start-up that it resembles a science project.

The bottom line for Apple is that its most precious asset is the Finder. It still separates Macs from the rest of the desktop-computing world. If Apple forgets it, we may eventually forget Apple. □



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Reviews

- ▶ LapTrack. See Page 38.
- ▶ In Brief: Vocabulary Virtuoso. See Page 40.



Claris gives update the Works, raises bar for integrated apps

ClarisWorks 2.0 adds Slide Show, outliner

By Dale Coleman

ClarisWorks 2.0, from Claris Corp., comes closer to achieving the goal of software synergy than any of its three major competitors (see story, next page). At a list price of \$299, it combines word processing, database, charting, spreadsheet, graphics and communications in a powerful, flexible and easy-to-use application.

score card

ClarisWorks

Claris Corp.
Version tested: 2.0
List price: \$299*
Overall value ♦♦♦♦

Claris Corp.'s popular integrated software has been upgraded with some major new features and many minor ones. Its flashiest features are a new eight-bit paint environment; an easily modified tool palette; a flexible, powerful outliner integrated into the word processing environment; and a robust presentation feature. Lesser features include new drawing tools, spreadsheet enhancements, additional chart types and pop-up menus for database field entry. The application file size and memory requirements are still trim. It has a few bugs but nevertheless is the best overall value in integrated packages for the Mac.

Performance ♦♦♦♦
Features ♦♦♦♦
Ease of use ♦♦♦♦
Documentation/support ♦♦♦♦

*Upgrades, \$99 (\$69 through July 15); ClarisWorks is \$129 with trade-in of another integrated application.

RATINGS KEY

♦♦♦♦ Excellent
♦♦♦♦ Very good
♦♦♦♦ Good
♦♦♦♦ Fair
♦♦♦♦ Unsatisfactory

ClarisWorks 1.0's frame-based approach to integrated documents made it easy to combine various elements in most environments. The upgrade has retained the overall look and feel of the original to a remarkable degree, and new features are well-integrated into the application's design.

Those features most likely to catch your eye include Shortcuts, which is similar to the tool bar in both Microsoft Excel and Word; Slide Show, a surprisingly robust presentation feature; a very capable and flexible outline feature that's smoothly integrated into the word processing environment; and a completely new eight-bit-color painting environment. Some features are common to most or all environments; others are environment-specific. In most cases, features are not shared with the communications environment.

Other general improvements include 256 editable colors and custom gradients, more preference settings, custom character styles, and support for publish and subscribe and QuickTime.

Short way around. The Shortcuts palette, an optional, user-configurable floating tool palette, can contain up to 30 button icons for common tasks. The icons themselves are mostly intuitive; if you don't like the appearance of an icon, you can easily edit it. Some icons are environment-specific. You can assign a Shortcuts button to a macro and even create document-specific palettes.

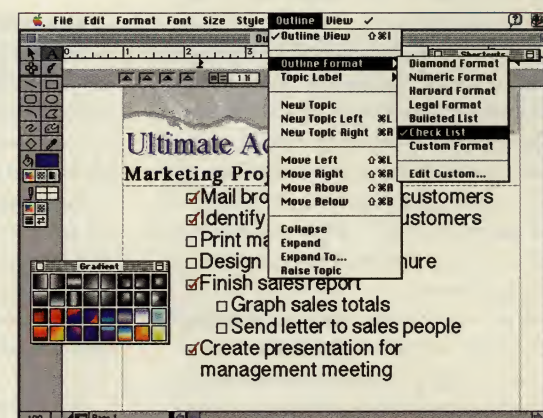
You edit Shortcuts palettes in the simple Edit Shortcuts window, which displays a scrolling window of the 158 predefined buttons. You can summon a description of a button by clicking on a button in this window.

We find ourselves using the Shortcuts palette more than we imagined for at least three reasons. First, ClarisWorks uses the most accessible scheme we've seen to customize the palette. Second, you can view items on the Shortcuts palette by name rather than by icon, which can eliminate some guesswork. Finally, some features, such as Show Invisible Characters in the text environment, are available only via the Shortcuts palette.

On with the Slide Show.

With integrated software there aren't many "new" features that haven't appeared elsewhere, but Slide Show is an exception. This unexpected feature adds a new dimension to using an integrated product: It lets you create a simple presentation of slides based on pages of a document (from the text, drawing or painting environments, and from the layout view in the database environment). The Slide Show dialog box lets you reorder the slides, choose background and border, fade between slides, and control the pacing. You can also add QuickTime movies to a presentation.

Slide Show should let just about anyone — casual users, traveling



ClarisWorks' outlining feature lets you choose from a list of six predefined formats or create your own custom outline format. The program also features a tear-off gradient palette.

PowerBook users and novices — create professional-looking presentations in minutes.

Text and spreadsheet environments. ClarisWorks' text environment benefits from many minor but much-needed improvements, such as user-defined character styles and the capability to display invisible characters and spell check a selection. However, there's no way to directly get a sentence, paragraph or word count — and you still must spell check an entire

document to get a word count.

The new Outline view is the most flexible outline feature available, combining the most useful features of Microsoft Word and WordPerfect outlining. You can use it in a manner similar to Symmetry Corp.'s Acta 7, in which you move items and their dependents to new positions in the outline. You can collapse and expand topics, and you can display the outline in any of six predefined formats, including Check List, Harvard and Legal, or

See ClarisWorks, next page

Asanté Ethernet hub a smart choice

By Jonathan A. Oski

Asanté Technologies Inc., better known for its family of Ethernet adapters, has resisted the temptation to toss a dunce cap in the network-closet ring. The company, instead, has introduced an intelligent, somewhat expandable Ethernet hub: the AsantéHub 1012.

With its new product, Asanté enters the fairly narrow intelligent-hub market, which includes substantial players such as Synoptics Communications Inc., Cabletron Systems Inc., Chipcom Corp. and Network Resources Corp.

Intelligent hubs offer considerably more than a plug-and-play point-of-wiring concentration. They offer additional functionality such as automatic fault detection and isolation, and in-band and out-of-band management. In many cases, they can be housed in a multi-slot chassis that integrates bridging, routing, management and support for multiple types of cabling.

The AsantéHub 1012, the company's first intelligent hub, can be deployed in a variety of ways. We evaluated the \$1,299 AsantéHub 1012 with the optional \$399 out-of-band AsantéView management software and the \$200 SNMP (Simple

Network Management Protocol). AsantéView is also available in an in-band, over-the-network management solution for \$999.

Installation. Installing the AsantéHub 1012 can be as simple as plugging in the power, connecting

nodes and turning it on. This is a nice feature for those who want to get the network up as soon as possible and implement the management features later. Ideally, however, you should have some network plan in mind before you install the hub.

See AsantéHub, Page 37

score card

AsantéHub 1012 with AsantéView

Asanté Technologies Inc.
Overall value ♦♦♦♦ List price: \$1,898*

The AsantéHub 1012 offers features that are unmatched by any other product in its price range. Starting at \$1,299 (depending on software configuration), it is a 12-port 10BASE T Ethernet hub that can be managed by any SNMP (Simple Network Management Protocol) management station you may have. For an additional fee, AsantéView software can be added to provide comprehensive in- and out-of-band network management that can extend down to individual workstations on your network. Asanté has structured its family of intelligent hub products to maximize flexibility. Virtually everything is offered on an a la carte basis so you don't have to pay for features or functionality that you don't need. For small- to medium-size Ethernet-only networks, it's hard to beat these products.

Performance ♦♦♦♦ Ease of use ♦♦♦♦
Features ♦♦♦♦ Documentation/support ♦♦♦♦
Configuration ♦♦♦♦

*As reviewed, with AsantéView out-of-band and SNMP options; stand-alone hub, \$1,299; AsantéView out-of-band software, \$399; AsantéView in-band/out-of-band combination software, \$999; hub with SNMP option, \$1,499; SNMP Mac Agent, \$299 for 12-license pack.

Getting down to work with integrated software packages

There are three main ways to evaluate integrated software products: by the strength and depth of the features in each module or environment, by the degree to which these features are integrated into a whole, and by the price.

In the first method, you must consider which task among word processing, spreadsheet, database and graphics is most important and then consider the tools offered for your selected task. According to the companies that market the four major integrated packages — Claris Corp., Microsoft Corp., Symantec Corp. and WordPerfect Corp. — most users buy them for word processing tasks. Those who use a standard product for their main task, such as professional writers who depend on Microsoft Word, use an integrated product as a supplement.

In the second method, you must consider the value of having a large number of tools available within a single application and judge the products by how smoothly the respective environments are integrated. This aspect is important for such tasks as creating complex documents that include several types of data (such as text, graphics and numbers). If you regularly create documents such as newsletters and financial reports, the degree of integration of these packages' tools may be more important than you realize.

The third method, dollar price per feature, if you will, should be used only after a proper evaluation by one of the other two methods. To do otherwise would be foolish because the value of the time spent using an application quickly surpasses the money spent on the purchase, particularly when, as in this case, all the products are already in the bargain basement discount bin.

Microsoft Works 3.0. The latest version of the \$249 Microsoft Works (see MacWEEK, Nov. 16, 1992) offers fewer features than any of the other three. Additionally, the level of integration is the lowest in its class and is mostly limited to the general availability of the word-proofing tools and the drawing tool. It's also the only application in this category to lack a color painting module. That said, Works still excels at several of the most common tasks. The word processor is adequate, although you'll have to adjust to having no WYSIWYG display of footnotes, headers and footers.

Microsoft Works offers the most functionality in the database module. It lacks some eye-catching features such as pop-up menus for aiding data entry but offers several other useful file-management features. One of these is the capability to define and save up to 16 data filters, which makes it much more conve-

nient to view different subsets of your data. It also contains tools to help you print both labels and envelopes.

GreatWorks 2.0. By our criteria Symantec's GreatWorks 2.0 (see MacWEEK, April 13) occupies the middle ground in this product category. The suite of features is solid but not aggressive, while the integration is limited to a handful of core functions such as spell checking, thesaurus and text styles that are common throughout all modules. This doesn't do a lot for integration, but it does help ensure consistency between the different modules. It includes separate modules for all the common functions, including color, painting and drawing. We think the feature set is well-suited to the type of user who creates relatively simple documents and irregularly performs mundane tasks such as mailings. It's easier to address and print an envelope with GreatWorks than any of the competing products.

A recent price reduction makes GreatWorks, at \$129.95 list, one of the best general-purpose software bargains available today. If price is your greatest concern, look no further. GreatWorks offers a broad range of features in a solid, well-documented and well-supported package.

WordPerfect Works 1.2. By almost any measurement, WordPerfect Works 1.2 (see MacWEEK, Feb. 8) is the most ambitious product of the group. Each of the modules in this \$249 application (originally called BeagleWorks) is very complete, with features not found in the competing products. The database includes a picture field type, for example, while the word processor boasts such advanced features as sections and user-defined paragraph styles. Its tool bar, a palette with a group of icons that changes to reflect the active environment, is a good idea and was probably the inspiration for ClarisWorks 2.0's Shortcuts.

WordPerfect Works uses a frame technique similar to that of ClarisWorks. The important difference between the two is that WordPerfect Works' frames are actually System 7 publish and subscribe elements — the links are live, and a link may be shared with multiple documents, including non-WordPerfect Works documents created by applications supporting publish and subscribe. This aspect of the product is called in-context editing and is designed for creating complex compound documents.

While undeniably powerful, in our opinion in-context editing provides more features than most users of this type of software

want. Rather, we think most users will prefer the simpler approach taken by Claris with ClarisWorks. Our opinion might be different if in-context editing didn't slow down the documentation process so much. While ClarisWorks frames are created almost instantaneously, WordPerfect Works frames take several seconds to draw, and you must deal with the substantial file housekeeping overhead created by publish and subscribe.

Although WordPerfect Corp. squashed, by its own account, several hundred bugs since the program's first release, the product is still quite buggy. It also suffers from an annoying degree of quirkiness. The spell checking feature, for example, is available only in the text module, while the thesaurus is available across all modules. For these reasons it's hard to recommend this product unless you really need one of its advanced features.

The chase. Each of these products has a distinctive personality and a different feature set. We think ClarisWorks, with the noted exceptions, offers most users the most balanced combination of features, integration and overall good design.

Microsoft Corp. is at 1 Microsoft Way, Redmond, Wash. 98052. Phone (206) 882-8080; fax (206) 883-8101.

Symantec Corp. is at 10201 Torre Ave., Cupertino, Calif. 95014. Phone (408) 253-9600; fax (408) 252-4694.

WordPerfect Corp. is at 1555 N. Technology Way, Orem, Utah 84057. Phone (801) 225-5000; fax (801) 222-5377.

— By Dale Coleman

score card

Integrated applications

	Microsoft Works	Symantec GreatWorks	WordPerfect Works
Overall value	♦♦♦	♦♦♦	♦♦
Version tested	3.0	2.0	1.2
Price	\$249	\$129.95	\$249
Performance	♦♦♦	♦♦♦	♦♦
Ease of use	♦♦♦	♦♦♦♦	♦♦
Features	♦♦♦	♦♦♦♦	♦♦♦♦
Documentation/support	♦♦♦♦	♦♦♦	♦♦♦

ClarisWorks *From previous page*

a custom format of your own.

As an example of how central integration is to ClarisWorks, the table feature, accessible only via the Shortcuts palette, actually creates a spreadsheet frame. This works remarkably well, although we wish Claris had added in-cell editing. Aside from that, the table feature is equal to or better than that of either Microsoft Word or Claris' MacWrite Pro.

For many tasks, ClarisWorks is a better word processing tool than MacWrite Pro. Its creative use of frames lets you create multi-element

documents in most cases with a lot less effort. If ClarisWorks' text environment included paragraph styles (or style sheets), section breaks and some way to quickly summon document statistics, many users might gladly trade MacWrite Pro for ClarisWorks. Since ClarisWorks' Outline feature apparently includes all the code necessary for paragraph styles, we hope to see this feature added in the future.

New spreadsheet features include text wrap within cells; cell borders; row and column locking, which create a static title as you scroll through a worksheet; and the

capability to copy and paste cell formats. New kinds of charts, including pictogram, and the capability to combine and modify charts have also been added to ClarisWorks.

Drawing and painting.

Although ClarisWorks allows you to create a draw document, when you create objects in environments other than draw, you don't create a draw frame. Instead, you select an object tool from the tool palette, which is similar to palettes found in object-oriented drawing applications and is available in all environments except communications. ClarisWorks 2.0 adds tools for drawing Bezier curves and polygons and the capability to pick up an object's attributes. A master page feature lets you create a background for every page in a draw document. This is useful when you're creating Slide Show presentations.

The brand-new paint environment includes a competent list of standard painting features, including tear-off palettes (also available in the draw environment) for pen color, fill color, pen pattern, gradi-

ents, arrows and line widths. Since the painting module makes some rather extreme demands on the available memory, Claris recommends that you use a paint frame, which requires dramatically less memory, rather than opening a paint document. This is important because ClarisWorks tends not to return free memory when you close a paint document after encountering a low-memory situation.

Database environment.

New pop-up menus help speed data entry, and you can insert a database file into an open database document — a handy way to merge similar files. In addition, ClarisWorks has preconfigured layouts for what appears to be every Avery label format. You can also easily create custom label formats. There is, however, no support here or in the text environment for simplifying envelope printing.

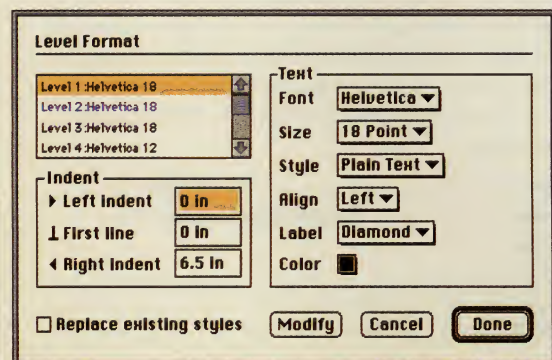
Communications. As with all integrated software, the communications environment in ClarisWorks has a bolted-on feel. It's not really

integrated with the other environments, and it's about as exciting as a bowl of cold oatmeal. In its favor, some new features make it an acceptable tool for on-line work. You can finally print from this environment, and the clumsy separate window for reviewing session activity has been replaced with a pane in the main window; you control the size of the pane with a standard split window bar. Interestingly, you can also have two simultaneous communications sessions if you have two modems. Performing some tasks, such as resetting the modem, cause an annoying delay because the communications environment relies on the Macintosh Communications Toolbox.

Documentation and support.

The manual is adequate, but it could be a lot better. The index is slimmer than it needs to be, and some examples in the text are either incomplete or simply misleading. On the other hand, support is quite good. We followed the Claris forum on CompuServe for several weeks and found

See ClarisWorks, next page



Creating a custom outline format is much like creating a custom paragraph style in other applications. But this paragraph-oriented formatting is not available in other ClarisWorks environments.

AsantéHub

From Page 35

The complexity of the installation will depend on the complexity of your network. For example, if this is a stand-alone hub, you can easily take the plug-and-play approach to installation. But if you're installing a series of hubs on the same network, you should review the installation guide to familiarize yourself with the many cabling options.

The hub has 12 RJ-45 ports on the front panel for connecting any nodes on your network. Alternatively, if your nodes are connected to an existing punch-down block, you can use the RJ-21 port on the rear panel to plug into that. This makes for a "cleaner" installation from the front of the hub, but you may sacrifice some flexibility because all nodes must be connected to the same punch-down block.

To connect multiple hubs, Asanté provides a three-in-one Uplink port that lets you use unshielded twisted-pair, thin or thick coaxial cable using the RJ-45, BNC or AUI (attachment unit interface) cables. (If the hub is to stand alone, you can use the RJ-45 IN port to attach a 13th device to the hub.) An added feature of the three-in-one Uplink is that you can create redundant links between your AsantéHubs. If you connect your hubs with more than one type of cable — twisted-pair and thin-net, for example — an

auto-sense feature can detect any problem with one connection between hubs and switch automatically to the other. Information on redundant links is available separately from Asanté in an application note and is not included in the base documentation.

The last set of ports on the hub's rear panel is reserved for management. The AsantéView management ports provide access for out-of-band data. There are two DIP switches that you must set to specify your out-of-band management configuration. The settings for these switches were documented incorrectly in the installation guide, which caused us some frustration when we first tried to use AsantéView, but Asanté's technical-support staff was aware of this problem and quickly provided the correct settings. Multiple hubs can be serially connected for out-of-band management ports. Ports are provided for RS-232 connections (modem or direct terminal) or via RJ-45 using Asanté's AMS link adapter, which attaches directly to a management workstation.

AsantéView. Asanté's optional network-management software, AsantéView, is available only for out-of-band management or in- and out-of-band hub management. Since network management is a key advantage offered by intelligent hubs, we

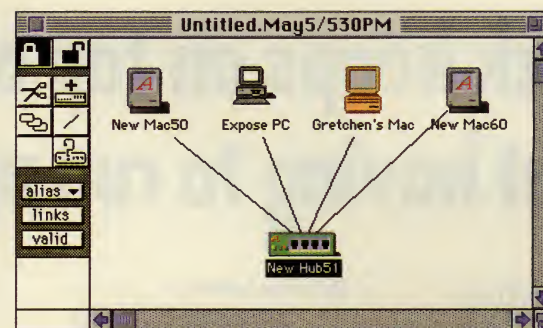
strongly encourage purchasing at least out-of-band management for your network. Setup of out-of-band management is fairly straightforward, as you only need to connect the hub and run the software.

The functionality provided by AsantéView is virtually identical for both the in-band and out-of-band products, but you must use the out-of-band application first to configure the hub for in-band management. Out-of-band management capabilities are very important because this is your only route to the hub if your network goes down. It is more restrictive, however, because the management station must be attached either directly to the hub, or connected by modem or some other serial-connection scheme.

In-band management relies on Internet Protocol to communicate with the hub. Therefore, you will need to install MacTCP to use the in-band version of AsantéView. Likewise, you must use the out-of-band application to configure the hubs, IP address and other parameters. TCP/IP network configuration can get fairly involved and is outside the focus of this review. Asanté includes Apple's MacTCP software and documentation with the in-band version of AsantéView. If you are not familiar with TCP/IP networking, this will present an additional challenge if you plan to use the in-band management software.

Advanced management.

The array of functionality provided by AsantéView is almost mind-boggling. It ranges from basic items such as hub configuration and port management to performance monitoring, fault reporting and, using



AsantéView uses maps to display all the network devices it can monitor. You can create a map manually, with the tools in the palette on the left, or you can have AsantéView build one for you.

SNMP, complete network management of any supported device on your network.

AsantéView is very graphically oriented. One of the first things you need to do is create a network map or let AsantéView build one for you. This is a pictorial representation of your network that includes any SNMP-supported devices. If you have a large network, you can create multiple maps and link them hierarchically, which eliminates some of the clutter you get if you try to display everything on one map.

After maps are created, network devices can be configured or managed with AsantéView. Double-clicking on a hub, for instance, brings up an accurate picture of the front of the hub, illustrating the array of LEDs that fill the front panel. These LEDs give you vital information, such as network utilization, percent of collisions and port status. Another panel lets you configure the individual ports on the hub, turning them on or off, or changing link thresholds.

AsantéView also lets you monitor network-performance statistics in either graphical or tabular views. The graphical view uses line graphs to plot network performance and lets you track up to four different network metrics (such as total packets, broadcasts, multicasts, runts and collisions) at any time. What we noticed was how easy it was to use AsantéView. Using a variety of windows, network managers can easily monitor the performance of their network from a single workstation. The displays can be easily tailored to display whatever information is deemed necessary to monitor the health of your network.

Finally, AsantéView allows you to retrieve information from other SNMP devices on your network. Asanté provides a Mac SNMP MIB (Management Information Base) that lets you query the hardware and software configuration of any Mac on your network that has the SNMP Agent installed. This information is akin to that provided by some of the familiar network-administration tools such as Technology Works Inc.'s GraceLAN Network Manager or ON Technology Inc.'s Status*Mac.

Bigger and better things. If your networking needs are limited

and can be met with one or two 12-port hubs, the AsantéHub 1012 offers an inexpensive, fully manageable solution. The AsantéHub product line is also appropriate for organizations that need significantly more hubs, since Asanté recently announced extensions to its hub family that include a seven-slot chassis and bridge.

These products, also manageable with AsantéView, support a wider variety of cabling but are limited to Ethernet at this time. AsantéView out-of-band can manage up to 12 daisy-chained hubs at any given time. You should take this limitation into consideration when planning your installation. Asanté has also indicated that it will support Apple's SNMP MIB that is scheduled to be released shortly.

Conclusions. We had relatively few problems during our evaluation of the AsantéHub 1012. It provides a low-cost intelligent Ethernet hub solution that is both flexible and expandable. You will have a hard time finding equal functionality at a lower price from the other leading manufacturers in this market. In addition, the AsantéView software greatly enhances the management capabilities of the hub.

Although the product is scalable, we would hesitate to recommend it for some networks because of the Ethernet-only limitation. Most competitors in the high end of the intelligent hub market offer integrated support for token-ring and Fiber Distributed Data Interface in the same hub and also provide higher port density in the multislot chassis. It is logical to assume that if successful, Asanté's product line will grow to accommodate these needs.

Asanté Technologies Inc. is at 821 Fox Lane, San Jose, Calif. 95131. Phone (408) 435-8388 or (800) 662-9686; fax (408) 432-1117. □



AsantéView displays a representation of the front panel of the AsantéHub, showing which ports are enabled, which are in use, network traffic saturation and percentage of collisions.

ClarisWorks

From previous page

that questions are answered and problems solved promptly. The ClarisWorks Users Group International, at (313) 454-1969, has grown into a strong source of support for users, and membership is well worth the annual dues.

Some problems. ClarisWorks is a pleasure to use mainly because most of its features are readily accessible and the selection of features, always tricky in an integrated product, reflects a great deal of wisdom and common sense.

On the other hand, omissions and bad decisions linger: Besides having to spell check a document to get a word count, the Open File dialog box is confusing. It makes the proper distinction between document type and file type, but if you want to open a Microsoft Word document, for example, you have to set the Document Type pop-up to Word Processing, which causes

the File Type to change from All ClarisWorks to All Available. It's tremendously confusing.

Preferences behavior is also counter-intuitive. Unlike most other products, the Preferences dialog contains a Make Default button. If you make a change to Preferences, then click OK, the Preference is changed for only that document. To actually change the preference, you must click the Make Default button. The inconsistency with accepted practice is annoying.

Even though Claris developed XTND file translation, and a healthy set of filters is included, there is no MacWrite Pro XTND import and export filter. Nor can ClarisWorks database files be saved in FileMaker Pro format.

Conclusions. Complaints notwithstanding, Claris has done a very good job with this upgrade. It excels both as a group of small applications and as a powerful integrated tool. New features, including Slide

Show and Shortcuts, are welcome additions and, as with most of the program's features, they are very clearly designed and implemented. The Outline feature in the text environment is exceptional.

We recommend ClarisWorks to anyone who could benefit from an integrated package. It is the best overall integrated software value on the Mac.

Claris Corp. is at 5201 Patrick Henry Drive, Santa Clara, Calif. 95052. Phone (408) 727-8227 or (800) 544-8554. □

SYSTEM 7 COMPATIBILITY

ClarisWorks 2.0

Balloon help	Yes
TrueType	Yes
Publish and subscribe	Yes
Apple events	Yes
32-bit addressing*	Yes

*According to vendor.

SYSTEM 7 COMPATIBILITY

AsantéView 2.1

Balloon help	No
TrueType	n/a
Publish and subscribe	n/a
Apple events	No
32-bit addressing*	Yes

*According to vendor.

LapTrack keeps on top of expenses without having to run up a big bill

Timeslips' accounting product tracks time and expenses in a low-cost, networkable system, but performance and interface hinder the product's utility.

By Jeffrey Sullivan

Tracking expenses on a per-project basis, once largely a consultant-oriented necessity, has become a staple of modern business practice. LapTrack, a cost-effective product from Timeslips Corp., attempts to streamline this task for general users.

The \$79.95 LapTrack is a slimmed-down sibling of Timeslips' flagship product, Timeslips III (see story below). It aims to provide all of the most-used features of a time and expense tracking system in a low-cost, networkable package.

A slip in time. Everything in LapTrack is based on Slips — either Expense Slips, which account for a specific expense incurred, such as mileage or a business lunch, or Timeslips (not to be confused with the company name), which account for billable time.

Each Slip includes a User (the person who did the work), an Activity (the work performed), a Client (the person who gets the bill) and an optional Reference (or project) for that Client. There can be multiple references for a given client.

Each Timeslip includes a timer that lets you track the time spent on a project. You can either run the timer, tracking your billable hours as you go, or manually enter the time spent on an activity.

All the data relating to a given business — Slips, users, clients, addresses, phone numbers, activities and references — is organized into a LapTrack Data Set. Each Data Set can hold as many as 250 users, 250 activities, 3,400 clients, 128 references per client and 32,000 Slips. One flaw in LapTrack's design is that the company decided to implement a Data Set as nine separate files stored inside a folder rather than as a single file, which means you have to be very careful when moving Data Sets.

Tools of the trade. Most work within LapTrack is done in one of two programs. LT Data Entry, the main program, is used to create, edit, search and update the Slips in your Data Set. (LT Data Entry is also provided as a desk accessory for users running System 6.0.x.)

LT Reports is used to set up Data Sets and generate a variety of text-based, bar, pie and summary reports. The look of the reports is not configurable, however; LT Reports chooses the patterns for

each item, and color is not supported. The font and style of text-based reports is not configurable, either.

Lost time. We found LapTrack to be slightly sluggish in performing searches and creating reports, even for relatively small Data Sets containing a few dozen Slips. Future versions of LapTrack should address this issue.

In addition, we found parts of LapTrack's interface to be decidedly un-Mac-like. For instance, LT Data Entry supports a mode called Batch Entry, in which a large black arrowhead points to the current field, button or check box. The arrow keys are used to select from list boxes or radio buttons, while the Tab key moves the arrow. The Return key clicks a button or check box. While Batch Entry may be an efficiency-

The main window of Timeslips' LapTrack is where you enter and edit most entries. Buttons abound on this screen, where pop-ups would be more appropriate — trashing the spirit, if not the letter, of Apple's Human Interface Guidelines.

enhancing feature, it certainly takes getting used to.

Also, when you choose Open from the File menu in LT Reports, you are first presented with a dialog asking you how you want to open a Data Set before you get the familiar Open dialog. There were many interface quirks like these in LapTrack that made us feel as if we were working in a program that was ported from another operating system.

Wrong side of the tracks. By its very nature, the information stored in LapTrack's Slips is sensitive — you don't want just anyone poking into your company's billing records, perusing your rates or examining expenses. LapTrack provides security features to suit just about any level of paranoia. A special user, called the Administrator, is allowed to create and modify the security for a LapTrack system.

See LapTrack, Page 40

score card

LapTrack

Timeslips Corp.
Version tested: 1.0
List price: \$79.95
Overall value ♦♦

LapTrack, a slimmed-down version of Timeslips Corp.'s main product, Timeslips III, provides time and expense tracking in a low-cost, networkable system. Flexible support for system security and the capability to customize some features allow LapTrack to fit virtually any business. But mediocre system performance, a slightly unintuitive interface and the inability to customize reports detract from the otherwise solid design of this product. With a performance boost and a few adjustments to the interface, LapTrack would be much better-suited for expense tracking.

Performance ♦♦
Features ♦♦♦
Ease of use ♦♦
Documentation/support ♦♦♦

Timeslips III offers support for client and project billing

There is a family resemblance between Timeslips III, the flagship product of Timeslips Corp., and LapTrack. But Timeslips III goes beyond LapTrack in several ways, not the least of which is list price: at \$299.99, Timeslips III costs nearly four times LapTrack's \$79.95.

Timeslips III and LapTrack share a lot of functionality in Slip entry: TSTimer and LT Data Entry are essentially the same program. The greatest difference between the two is in the reporting application. Timeslips III's TSReport has a superset of the functionality of LT Reports. TSReport supports quite a few more report types than LT Reports; some relate to additional features in TSReport, but many simply reflect the more thorough nature of Timeslips III.

Detailed billing. The biggest difference between TSReport and LT Reports is that TSReport has substantially more capability in the area of client and project billing. Unlike LT Reports, TSReport knows about billing and payments. It has an additional data element — Transaction — that tracks payments made against outstanding invoices. TSReport also lets you monitor the billing status of any client or project and generate reports of the billing activity of any user, activity or reference.

Not surprisingly, TSReport supports a much more detailed profile of client billing than the simple hourly rate or flat fee supported by LapTrack. In TSReport, you can assign a variety of flat fees based on minimum or maximum charges, time spent, or a surcharge applied to other fees. Service and sales-tax rates are maintained for each client, as are account aging and interest charges accumulated on outstanding invoices.

Because it can actually generate and track invoices and payments made on those invoices, Timeslips III can serve as a rudimentary accounting package. However, most businesses larger than cottage industries are likely to already have a dedicated accounting package; Timeslips III can interact with most of them through an add-on package (see story, Page 40).

TSReport also supports much more elaborate design of report formats. It includes a layout option that lets you add customized fonts, styles and graphics to your invoices and reports, unlike the fixed, text-only layout available in LT Reports.

Covering the bases. One feature you want from a product dealing with a subject as widely applicable as time and expense tracking is a broad base of data interchangeability. Timeslips has most of its bases covered. In addition to the Mac version, Timeslips III for the PC is also available. For people on the move, the Mac-based LapTrack and PC-based TSRemote are the solutions of choice. All these programs can share data directly with one another.

In addition, all these programs come with TSImport, a sophisticated file-translation utility that can import data from virtually any structured data source. TSImport includes templates for several popular products, such as CE Software Inc.'s Alarming Events and even Sharp Electronics Corp.'s Wizard palmtop personal organizer. Custom templates can be written for any text-based file. (Templates for binary files or hardware devices must be created by a programmer.)

Timeslips suggests LapTrack for mobile Macs (and TSRemote for PC notebooks), which will return their Slip data to "home base" machines equipped with Timeslips III for billing and payment tracking. Of course, business users must decide if the added billing and reporting capabilities of Timeslips III are worth the additional cost.

Timeslips III has the same system requirements as LapTrack, except that a hard disk is not required (although one is strongly recommended).

A five-station network version is \$699.95; additional stations beyond five are \$139.95 each. Starting with Version 2.1, all copies of Timeslips III are network-ready, just like LapTrack. Owners of single-user versions of Timeslips 2.0 or below can upgrade to Version 2.1 for \$49.95. Owners of network versions can upgrade for \$79.95. — By Jeffrey Sullivan

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LapTrack

From Page 38

As many as eight user groups can be specified in LapTrack; each group can have different levels of access and its own password.

Network-ready. A networkable application, LapTrack can operate on a central Data Set stored on a server, reconcile parts of a Data Set between a mobile

Mac and home-office system, and combine its data with data from other Macs running LapTrack or Timeslips III. There is no network pricing for LapTrack; each copy is for one Mac. LapTrack can support as many as 250 Macs on a single network.

The company has also included a full suite of Apple events that allow LapTrack to communicate with other programs.

Module links Timeslips III to accounting packages

Timeslips III Accounting Link, a \$79.95 add-on from Timeslips Corp., gives Timeslips III the capability to interface with general-accounting programs for the Macintosh. Timeslips Accounting Link supports all the major Mac accounting packages, including Softsync Inc.'s Accountant, Inc.; Great Plains Software's Great Plains Series; Peachtree Software Inc.'s atOnce! and Insight Expert; and CheckMark Software Inc.'s CashLedger and MultiLedger.

Timeslips Accounting Link (TAL) works as an extension to Timeslips III's TSReport program. It adds a new Slip type for Invoices (which have payments associated with them), a series of reports relating to invoices and payments, and the capability to import and export expense data to your accounting package.

Using TAL as an interface between Timeslips III and your accounting program makes sense. Because expense data is already being entered in Timeslips III, using TAL eliminates the need to rekey the data into your accounting package for invoicing, thus reducing time spent in data entry — and the accompanying errors that often occur.

TAL provides a wide array of invoices and payment reports to help analyze and examine the new data it adds to Timeslips III. Invoice-related reports include general-invoice printing (for submitting invoices to a client for payment), Write Up and Write Down reports for analyzing adjustments to invoices, and Tax Reports to list sales and services taxes paid by you or charged to your clients.

TAL requires the network-ready Version 2.1 of Timeslips III. It cannot be used with LapTrack. — By Jeffrey Sullivan

Documentation and support.

LapTrack's manual includes a fast-paced tutorial that whisks you through the program in the guise of a fictional user's typical workday. Although sketchy in places, the tutorial is easy to follow and introduces you to all of the program's fundamentals.

Of course, any real user will have to read the rest of the manual to understand many of LapTrack's customizable settings — this is one Mac program for which the manual is definitely not optional. Fortunately, LapTrack's manual is well-written and has a useful index.

In addition, LapTrack makes extensive use of balloon help, and there's a Help button on almost every screen.

LapTrack comes with 30 days of free technical support via a toll call. Support is also available through CompuServe, America Online, fax and Timeslips' own bulletin board system. Timeslips has been very responsive and accessible on CompuServe.

After the free 30-day period, technical support is available through two paid programs: a pay-as-you-go, hourly-rate program and a full-featured yearly support program.

LapTrack requires System 6.0.2 or later on Macs with at least 1 Mbyte of RAM and a hard disk. Some features require System 7. LT Data Entry uses 350 Kbytes of disk space and 300 Kbytes of RAM.

Aside from a few predefined searches (such as "Find all active Slips by User"), LapTrack's Find Criteria dialog is how you select Slips from your Data Set.

LT Reports uses 500 Kbytes of disk space and 540 Kbytes of RAM. Data Sets take up anywhere from 100 Kbytes to several megabytes of disk space.

Conclusions. If you need to track time or expenses, LapTrack is a very capable system, and its relatively low price and good feature set make it an attractive option. However, the inconsistent interface and unimpressive performance give it plenty of room for improvement. With a more streamlined (and Mac-like) interface and a good tuneup under the hood, LapTrack could be the best solution to expense tracking for small to midsize businesses. Larger businesses, or those requiring

billing capability, may want to examine Timeslips III to decide whether the extra features are worth the added cost.

Timeslips Corp. is at 239 Western Ave., Essex, Mass. 01929. Phone (508) 768-6100 or (800) 285-0999; fax (508) 768-7660. □

SYSTEM 7 COMPATIBILITY

LapTrack 1.0

Balloon help	Yes
TrueType	n/a
Publish and subscribe	No
Apple events	Yes
32-bit addressing*	Yes

*According to vendor.

IN BRIEF



Vocabulary Virtuoso

Word-learning techniques help improve vocabulary

Macintosh users looking to improve their English vocabulary have a new tool to try out: Vocabulary Virtuoso, a personal word mastery tutor from Learning Magic. The impressive package uses the Mac's interactive user interface along with digitally recorded human voices to implement proven word-learning techniques.

Vocabulary Virtuoso 1.0, which lists for \$39.95, includes an Educated vocabulary set of 400 of the most frequently occurring words from college and postgraduate entrance exams, including the PSAT, SAT, ACT and GRE. This is a bonus for anyone heading back to school.

The software is designed for any Mac from the Plus on up with at least 1 Mbyte of RAM. You can use it in a black-and-white, gray-scale or 256-color mode, and it's compatible with System 6.0.5 and up. External speakers are not necessary, but we think they substantially improve the clarity of the pronunciations.

The basic application, a help file and a 400-word vocabulary set without pronunciation sound files will fit on an 800-Kbyte floppy, but you'll need a hard disk with 4.5 Mbytes of free space to install the sound files. You can conserve disk space by installing the sound files on an individual 40-word unit basis or by not installing them at all.

We wouldn't recommend the latter, however. While the word pronunciation sound files do consume a relatively large amount of disk space, they contribute immensely to the pleasure and efficiency of learning new words with this well-designed program. The built-in definitions are intentionally concise and brief — for a more in-depth study of word meanings, you can use an on-line dictionary or thesaurus in conjunction with Vocabulary Virtuoso and its Copy Word to Clipboard command.

Flexible study options. Four different learning modules — New Words, Study Guide, Virtuoso Challenge and Custom Word List — let you choose the approach that works best for you. The New Words module incorporates the concept of paired associative learning: It pronounces each vocabulary word, notes the part of speech it belongs to and gives an example of the word in a sentence. To expedite the learning process, you're encouraged to enter your own word definition before displaying the one offered by Learning Magic.

You can score yourself with the Study Guide module, earning various points depending on whether you knew a word's definition from the word alone, needed the context help or didn't know the definition even with context help.

The Virtuoso Challenge module is a timed, multiple-choice drill. Its Study mode pronounces each word and, to stimulate interest, allows a selection of feedback sounds (such as Game Show, Neighbor's Kid and Surfer Dude). The Quiz mode is more serious — pronunciation is omitted, and a simple beep corroborates only correct answers. You're

scored as a Novice, Apprentice, Knowledgeable, Proficient, Erudite or (your goal) Virtuoso.

As an alternative to working with Vocabulary Virtuoso's built-in lessons, you can use the Custom Word List module to study only those words you want to learn.

Conclusions. We found Vocabulary Virtuoso easy and enjoyable to use, as well as mentally stimulating. Vocabulary Virtuoso is an excellent investment in self-

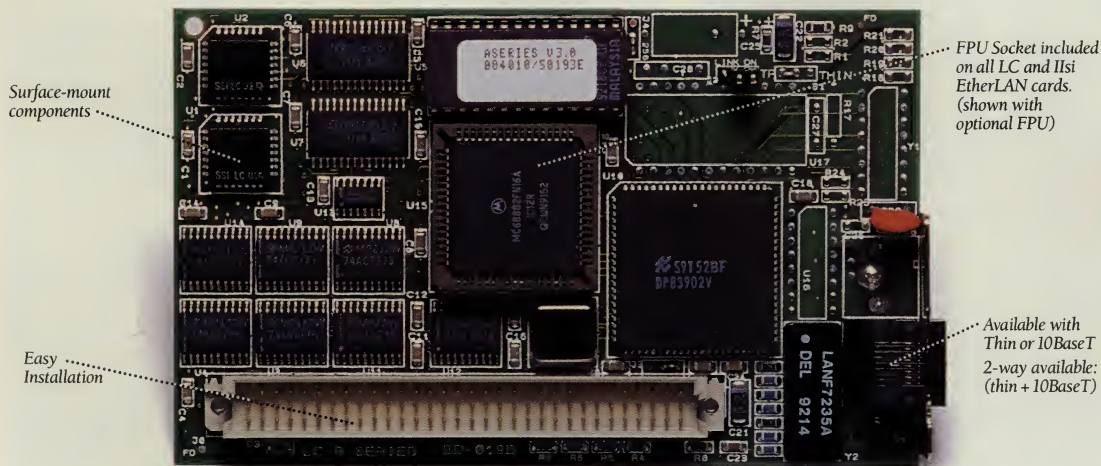
improvement for professionals and certainly an invaluable asset for classrooms.

Additional 400-word vocabulary sets are available separately for \$19.95 each. Currently, a bundled package of Vocabulary Virtuoso with three vocabulary sets is being offered for \$54.95. Site licenses are available.

Learning Magic is at 1133 Savoy St., San Diego, Calif. 92107. Phone (800) 598-3723 or (619) 225-0329. — By Mel Male

The New Words module in Learning Magic's Vocabulary Virtuoso pronounces vocabulary words and provides examples of usage. To learn faster, you should try to define the word on your own before displaying Learning Magic's definition.

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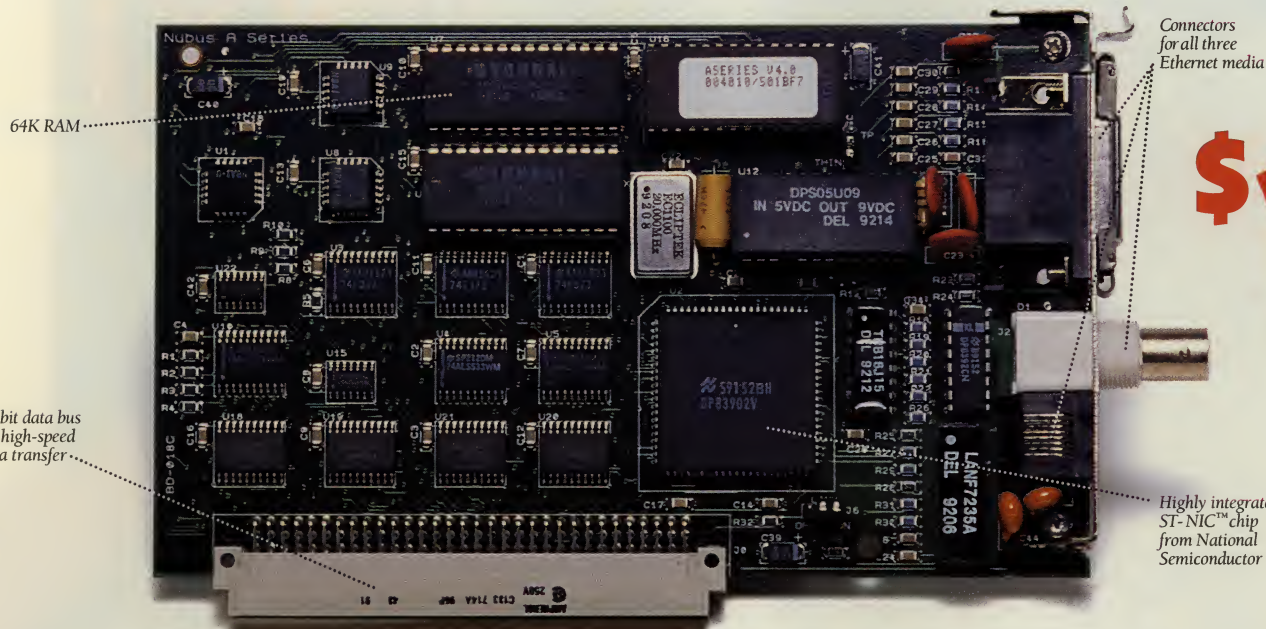


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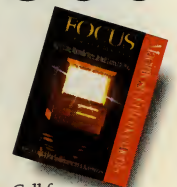
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PRODUCT WATCH

- Buying info
- Expert advice



Mac graphing packages have got your numbers

More powerful than some spreadsheets, graphing software makes statistical data come alive.

By Cliff Lehman

Graphing packages combine the attributes and uses of spreadsheets, statistical-analysis tools and presentation packages. But they have more graphing and graphics capabilities than spreadsheets, better analytical tools than presentation packages, and are more oriented to final presentations than statistical-analysis tools. Graphing applications are geared toward the graphical presentation of data and have found enthusiastic users for both their data-analysis power and presentation finesse.

Vendors have continued to improve their packages' ability to produce a larger variety of vivid graphs as well as add power to their analytical abilities. In addition, some software publishers have recently improved user interfaces, and one has even rescued its product from oblivion.

When choosing a graphing program, look for the number and kinds of graphs you need, mathematical prowess, data and graphics file formats supported for import and export, and ease of use.

All of the following products take indecipherable statistical data and turn it into a variety of colorful graphs. However, they have a range of graphing, graphics and mathematical abilities that will make them better suited to you depending on whether you mostly do business presentations requiring good-looking basic graphs or are analyzing scientific data using advanced mathematical formulas.

Presentation pizzazz. For users needing to plot basic business data for color slide and overhead transparency presentations, GraphMaster 1.34 from Visual Business Systems Inc. offers an array of charts and chart options as well as a large number of graphics controls for drawing, color, shading and 3-D. It is the only graphing program that supports pictograms.

"One of the reasons I chose GraphMaster is that it's easy to use," said Peter Rosenblum, a professor of communications at Seton Hall University in South Orange,

N.J., where GraphMaster is installed in a student computer lab. "I found and the students found that it is a very simple program to operate," Rosenblum said. Among the features Rosenblum said he appreciated for their simplicity are icons that indicate how to change the size of a frame or of elements inside charts, as well as graph icons that "give you easy choices, so you know what your graph is going to look like before you choose."

GraphMaster can also serve well in a professional production environment. "Out of every 100 slides we image, we create five in-house, so we're doing a couple hundred each week," said Scott Mangelson, vice president of Replicolor Computer Imaging Center Inc., a slide service bureau in Salt Lake City. The company chose GraphMaster because it needed "more sophisticated graphs than are available in presentation packages," Mangelson said. "It's a snazzy little package that let's us easily do decent color schemes."

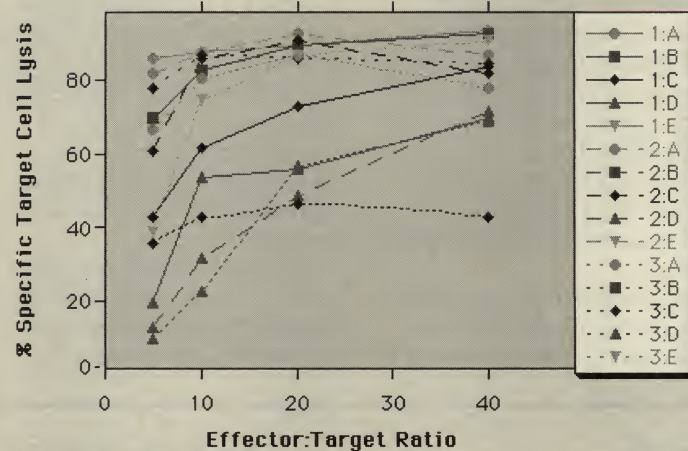
GraphMaster, Mangelson said, lets you change color schemes or the black-and-white bit-map fills for an entire graph without having to select individual parts of a graph, as is the case with some drawing and presentation packages. "It's a lot faster to get pleasing color schemes," he said. "Without having to select and edit everything, you can quickly do two versions, one that looks good on a laser printer and one that looks good in color."

Two programs, CA-Cricket Graph III from Computer Associates International Inc. and DeltaGraph Professional from DeltaPoint Inc., attract users from both the presentation and scientific camps.

Cricket Graph III, fresh from a recent major upgrade after years of neglect, has vaulted back into the mainstream of competitive graphing packages.

Terry Tuell, a materials and process engineer specialist at Lockheed Missiles & Space Co. Inc. of Sunnyvale, Calif., uses Cricket Graph III for generating calibration curves for aerospace compounds and for regression analysis.

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His results are often exported to Microsoft PowerPoint to make into slides, but the main thrust of his work is analytical. He uses Cricket Graph III because "the interface is much easier than other graphing packages even though DeltaGraph has more capabilities," he said.

Math test. DeltaGraph provides more kinds of charts than Cricket Graph, but it is DeltaGraph's 3-D functionality for which Tuell occasionally abandons Cricket Graph. "Cricket Graph can't do 3-D graphs, so I used DeltaGraph to produce contours of solar ray panels," Tuell said. "When you can plot something and show someone what it looks like on a micro-scale, it really makes a difference."

But others, whose analytical needs are more stringent, said

Cricket Graph's mathematical powers aren't enough.

Michael Kruger, statistical analyst in the department of obstetrics and gynecology at Hutzel Hospital, which is associated with Wayne State University in Detroit, said that while Cricket Graph III is much improved graphically, he does not use it for data analysis.

"We produce various bar and line graphs to represent data for publication in scientific publications," Kruger said.

"It has some primitive data analysis," Kruger said. "You can get a mean, multiply a column by a constant and some logs, but from a statistical point of view, it is rudimentary."

Of the newest version of Cricket Graph, Kruger said, "Now it's not as easy or as straightforward [as

See *Graphing*, next page

Dr. Gerald Waneck, assistant professor of surgery at Harvard University Medical School, uses KaleidaGraph to simplify and further delineate elements in the presentation of complex immunology cell research results. Elements can be easily replotted with the click of a few buttons.

Clip-art packages get moving

Clip-art discs

now help

multimedia

developers

with Quick-

Time movies

and still

images.

By Cliff Lehman

For years designers have relied on images from mass-marketed clip-art collections to dress up newsletters, magazines, promotional materials, advertisements and internal communications of all kinds. Now, with desktop publishing widespread, digital clip art has flourished — making tens of thousands of images available in a snap electronically — in all styles, shapes, colors and sizes.

With the emergence of QuickTime, users are also experimenting with clip-art collections containing movies, animation, sounds and music for multimedia presentations.

Moving clips. However, QuickTime clip art, like electronic

multimedia itself, is still in its infancy, and that is reflected in the uses to which people put this new genre.

Macromedia Inc. and Alpha Technologies Group Inc. has each come up with a pair of clip-art volumes aimed at makers of multimedia or video projects. Each set contains short movies, stills, animation, sound effects and music.

► Macromedia's two volumes of multimedia clip art come on CD-ROMs. Business & Technology, ClipMedia 1 lists for \$395 and contains 375 graphic elements, 75 animations, 50 video clips, 250 sound effects and 50 music pieces. Industry at Work, ClipMedia 2 lists for \$295 and includes 700 graphics and photos, 150 animations, 350

See *Clip art*, next page

Graphing

From previous page

previous versions], but it has more flexibility." The three new features Kruger relies on most are hot links between data and graphs, the ability to save graph formats, and the new drawing functions.

DeltaGraph Pro is by many accounts the premier product in this data-crunching/presentation category, offering a wide array of graphing choices while reportedly being one of the easier packages to use. It is also the only graphing package that is available in corresponding Windows and Mac versions.

Steve Birgfeld, manager of customer services at Booz-Allen & Hamilton Inc., a management and

technical consulting company in McLean, Va., said the company chose DeltaGraph Pro for charting flexibility as well as its availability for the Windows platform. But the decision boiled down to bubble charts and flexible annotation.

"We went for DeltaGraph mainly because it had a couple of capabilities — bubble charts and flexible annotation — that other packages didn't," Birgfeld said. Bubble charts plot groups of data in circles or "bubbles," whose size varies according to the amount of data represented, against a chart with x, y coordinates.

"We also needed DeltaGraph's ability to annotate each point on a chart and flexibility in doing that, such as being able to rotate the

text," Birgfeld said.

Booz-Allen uses DeltaGraph primarily in its proposal and presentation tasks, although it is used for analytical tasks as well, Birgfeld said. "We consider it our high-end graphing or charting package," he said.

Other companies find DeltaGraph Professional robust enough analytically to apply it principally as an engineering tool.

Roger Gliebe, a technical assistance specialist at Lockheed, said: "DeltaGraph fills pretty much any application. It has a full fleet of business graphs and a very good suite of basic scientific plots with 3-D graph capabilities for both business and science."

Gliebe, who provides technical

support to about 100 engineers working with Ford Motor Co. on a battery technology program for an electric car, said the engineers are generally satisfied with DeltaGraph. However, there are a few who "have copies of [Synergy Software's] KaleidaGraph because there are some things it does that Delta doesn't, such as probability plots," Gliebe said.

MacGraphX, from Bravo Technologies Inc., also has the potential to play well in both the business and scientific worlds. However, although its open architecture lets more technical users create customized graphs and import data from many sources, MacGraphX offers fewer kinds of built-in charts

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Clip art

From previous page

sound effects, and 30 music clips.

Except for the broadcast use of the video and music clips in ClipMedia 1, both ClipMedia volumes are free of copyright restrictions.

► Alpha Technologies' ClipTime volumes 1 and 2 cost \$99 and \$249, respectively. The CD-ROM volumes are primarily collections of QuickTime movies. ClipTime Volume 1 includes 250 movies on topics such as business, industry, medicine and transportation. Volume 2, subtitled Americana Themes, contains QuickTime movies about U.S. history, presidents, wars, national parks, animals and nature. The 315 movies, all of which are in color, are from five seconds to 45 seconds in length. Volume 2 also contains 65 color slides of national parks and 80 sound effects. A third volume, the \$99 Hollywood Classics, is to be released shortly.

The CDs include Apple's MoviePlayer, the QuickTime extension, and a HyperCard browser stack for sorting and pre-viewing the movies and pictures. Both volumes are royalty-free with no copyright restrictions.

Scott Kramer, owner of Kramer Productions, a multimedia production and consulting company in Columbia, Md., said he likes ClipTime Volume 1 in part because of the quality of its movie clips. However, he uses the clips to sell clients on the potential of multimedia or on a specific multimedia project rather than for finished multimedia pieces.

"I got ClipTime originally because I wanted to see what QuickTime looked like, to see the potential of multimedia as a solution for my clients," Kramer said. "Now, ClipTime is the material I use to sell QuickTime."

Beyond showcasing the technology itself, Kramer said he likes

ClipTime's contents because they provide him samples to show clients that pertain to their businesses. "A lot of the QuickTime clips out there right now are mountains, valleys and flowers — what I call leisure content — which isn't applicable to me or my clients," he said. "I was able to plug in ClipTime clips on surgical procedures to Adobe Premiere and show them to my medical clients."

QuickTime movies are also incorporated into a plethora of discs from Aris Entertainment Inc. What differentiates its image libraries are the more defined subject niches offered. Jets & Props supplies graphic photos of aircraft, both civilian and military, past and present. Videos of jets and prop planes in action are offered in both QuickTime and IBM PC-compatible Multimedia PC videos, in addition to photographic images in varied graphic formats.

Other Aris titles include Money, Money, Money, which includes images as well as audio tracks; Wild Places; Business Backgrounds; Majestic Places; Deep Voyage; Full Bloom; World View; and Island Designs. All discs cost \$39.95, except Jets & Props, which is \$59.95.

Image imagination. Electronic clip art, having grown out of a tradition of generic, hard-copy line art, gives designers the flexibility to change images, using them as a starting point for new designs rather than simply plugging in the images as is. Most clip art comes in TIFF or Encapsulated PostScript formats, which means designers can edit it in applications such as Adobe Illustrator, Aldus FreeHand and Adobe Photoshop.

The results, say designers, are often indistinguishable from art created from scratch.

Carol Dillon, president of the Dillon Group graphic design shop

in Seattle, uses clip-art collections from Image Club Graphics Inc. and other vendors. "I use clip art in lots of different projects as a starting point because I'm a designer, not an illustrator," she said. "I like EPS clip art because I can take ready-made designs and then combine and rework them in Illustrator, and many times you won't recognize them as clip art."

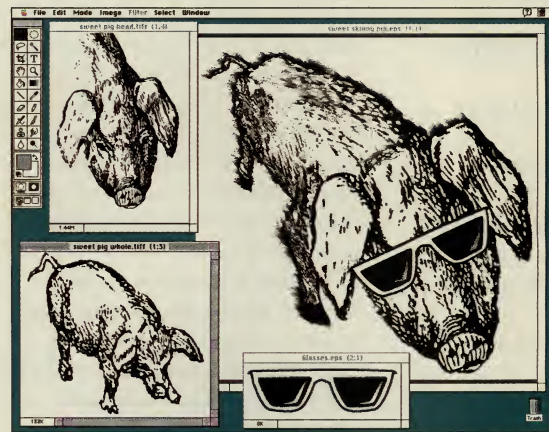
Bryan Mattimore, designer at the Mattimore Group of Stamford, Conn., uses images from various collections in T/Maker Co.'s ClickArt Series.

"I use it for logo development," Mattimore said. "I create all new logos, where you'd never know they came from clip art because I combined two or three images in such different ways."

Dillon and Mattimore are not alone. The capability to manipulate electronic clip art is widespread enough that at least one clip-art vendor provides tips and information about changing the images in its collections.

Value-added clips. Several designers mentioned the value of tips for electronically manipulating images that Dynamic Graphics Inc. provides as part of its packages. Electronic Clipper, a monthly subscription service of TIFF and EPS images, includes Options; Designer's Club, an EPS-only monthly subscription service, comes with Ideas & Images, which is billed as a "creative supplement for electronic designers." The company's Electronic Print Media Service, which offers more than 100 TIFF and EPS images monthly and was created especially for promotional and advertising applications, comes with a four-page supplement of electronic tips and shortcuts.

3G Graphics Inc. also offers tips-and-examples documentation with its \$499.95 Images with Impact CD-ROM. Version 2 of the popu-



lar clip-art collection was released this month. Some 1,300 images in six subject libraries are on the disc, each in EPS and 72-dpi PICT formats. The disc is dual-format, so it includes not only Mac-compatible files but a wide array of PC files as well. More than 50 percent of the images are in color. Libraries range from Graphics & Symbols and Accents & Borders to Business and People.

Another set of CD-ROMs from Sense Interactive Corp. comes with a different angle on value-added: A runtime version of Adobe Photoshop is included on disc for immediate viewing and manipulation of images.

A set of four discs is due in early June, each dual-mastered for access by Macs as well as PCs. The \$69.95 discs offer razor-sharp photos from award-winning photographers on a quartet of broad topics: earth, sky, water and power.

Although most clip art is recognizable generic illustrations, several designers pointed to the images in [Metal] Studio Inc.'s collection as an example of clip art with enough of its own style to transcend the obvious clip-art look.

"I'm not too fond of clip art, and we have quite a lot that we don't use at all," said Larnie Higgins, manager of design at Discovery Communications Inc. of Bethesda, Md.

See Clip art, Page 46

Carol Dillon, a graphic designer in Seattle, uses clip-art collections as a starting point, taking the ready-made designs and reworking them to her exact needs. Here separate shots of a pig, eyeglasses and pig head are retooled in a single new image.

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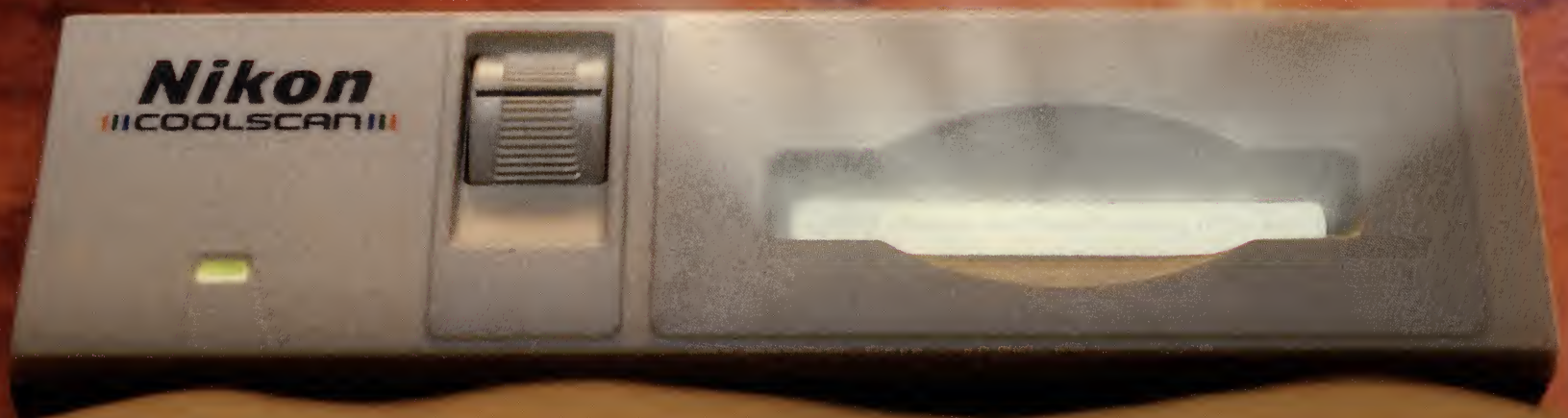
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Clip art

From Page 44

"We use [Metal]'s images because they are more highly stylized than standard clip art."

[Metal] offers four collections, ranging in price from \$95 to \$129. General Collection has 167 EPS images with graphics in areas such as food, travel, animals and the oil industry. General Collection II has an additional 92 business EPS images. Animal Collection consists of 72 EPS images of animals. Pattern

Collection comes with 15 design patterns in TIFF format.

Pure inspiration. Sometimes the ideas in clip art matter more than the images or even being able to manipulate them.

"It really is a point of inspiration," Dillon said. "Sometimes when I can't come up with an idea, I'll just sit down and flip through clip art. Often I won't even use the clip art, but it will give me a direction to go in."

Michael Sisson, partner at Sisson Group, a graphic design studio in New York, relies on Designer's Club and Electronic Clipper from Dynamic Graphics. "They are as much an ideas file as art file," he said.

Like many designers, Sisson uses clip art as is but often also manipulates it for inspiration. His bottom line about clip art speaks for a lot of designers: "When we are under the gun, it certainly saves us — there is no question." □

Product Info

ALPHA TECHNOLOGIES GROUP INC.

ClipTime Volume 1: \$99;**ClipTime Volume 2:** \$249

6921 Cable Drive, Suite 220, Marriottsville, Md. 21104

Phone (410) 781-4200 or (800) 952-9073;

fax (410) 549-2910

ARIS ENTERTAINMENT INC.

Money, Money, Money: \$39.95;**Wild Places:** \$39.95; **Business Backgrounds:**\$39.95; **Majestic Places:** \$39.95; **Deep****Voyage:** \$39.95; **Full Bloom:** \$39.95;**World View:** \$39.95; **Island Designs****(Batik Designs, Vintage Aloha):** \$39.95;**Jets & Props:** \$59.95

310 Washington Blvd., Suite 100, Marina del Rey, Calif. 90292

Phone (310) 821-0234 or (800) 228-2747;

fax (310) 821-6463

DYNAMIC GRAPHICS INC.

Electronic Clipper: \$67.50 per month plus ship-ping; **Electronic Print Media Service:** \$89.50 permonth plus shipping; **Designer's Club:** \$49.50per month plus shipping; **Art About (four vol-****umes):** \$129 each (disc), \$79 (paper); **DeskTop****Art (three volumes):** \$49.50 each

6000 N. Forest Park Drive, Peoria, Ill. 61614

Phone (309) 688-8800 or (800) 255-8800;

fax (309) 688-5873

IMAGE CLUB GRAPHICS INC.

DigitArt (24 volumes): \$49 to \$99 each;**TheWorks (all DigitArt volumes):** \$899

(floppy disk), \$799 (CD-ROM);

Art Room CD: \$799; **DarkRoom CD:** \$399

1902 11th St. S.E., Suite 5, Calgary, Alberta

T2G 3G2, Canada

Phone (403) 262-8008 or (800) 661-9410;

fax (403) 261-7013

MACROMEDIA INC.

Business & Technology, ClipMedia 1: \$395;**Industry at Work, ClipMedia 2:** \$295

600 Townsend St., Suite 310 W., San Francisco,

Calif. 94103

Phone (415) 252-2000 or (800) 288-4797;

fax (415) 626-0554

[METAL] STUDIO INC.

General Collection I: \$129; **General****Collection II:** \$95; **Animal Collection:** \$95;**Pattern Collection:** \$95

13164 Memorial Drive, Suite 222, Houston,

Texas 77079

Phone (713) 523-5177; fax (713) 523-5176

SENSE INTERACTIVE CORP.

MediaRights (four volumes): \$69.95

1412 W. Alabama St., Houston, Texas 77006

Phone (713) 523-5757; fax (713) 523-3057

T/MAKER CO.

ClickArt Studio Series (seven volumes): \$99.95each; **ClickArt Series (eight volumes):** \$59.95 each

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3G GRAPHICS INC.

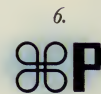
Images with Impact CD-ROM 2.0: \$499.95

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ArtZ. *Feels good*, doesn't it? Now (6) print it and (7) compare the two. OK? Now

(8) pull out your pocketbook. You've been doing *mickey mouse art* long enough.

*For the mice that run on a Mac, you can't call for pest control. But for the mice that run on top of a Mac, and under a Mac, and in the cupboards and stuff, call these guys: Orkin Exterminating.

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Graphing

From Page 44

than its competitors and has no 3-D capabilities. In addition, Bravo has not upgraded MacGraphX since its introduction more than two years ago.

Nerd heaven. KaleidaGraph, which attracts mainly scientific and engineering users, is the most powerful of the Mac graphing packages. Its newest incarnation, Version 3.0, has just been released.

Beta testers appreciate the upgraded KaleidaGraph mainly for its user-interface improvements, but the package also offers a larger array of colors and color controls, the ability to import Microsoft Excel files directly, and more user-defined curve fits, among other improvements. The program now supports publish and subscribe and more Apple events.

"KaleidaGraph is unmatched in high-quality graphics with professional-level number crunching," said Dennett Netterville, a research associate at Syncrude Canada Ltd. Research and Development, an oil exploration company in Edmonton, Alberta. "It's great for scientists. It has made it possible to get to findings we couldn't have gotten to any other way."

Netterville, who uses KaleidaGraph for preparing final versions of slides for publication as well as for data analysis, said: "The most important feature is its math analysis power. KaleidaGraph has generalized nonlinear curve fitting I haven't found elsewhere.

"I had to solve differential equations to define math curves with five unknown shaped parameters, and I wasn't able to solve this problem with any other software we were aware of."

But Netterville also appreciates the graphics tools available in KaleidaGraph. "I spend most of my time in the graphic window," he said, "where there is an especially handy floating palette of drawing tools."

Dr. Gerald Waneck, assistant professor of surgery at Harvard University Medical School in Boston, likes KaleidaGraph for its scientific graphing power but appreciates some of KaleidaGraph's new graphical features for their ability to help his analysis work. "I don't need presentations capabilities; I just want a good graphing program.

"Version 3.0 is much better," Waneck said. "The main improvement is the editable color palette of 64 colors. The new version of KaleidaGraph lets me choose multiple symbols and colors so I can compare a lot of lines on the same graph and be able to distinguish them. I can pick and choose the colors I think will show up."

Waneck performs highly complex number crunching of groups and subgroups in the course of his immunology research. "The point is we need to compare multiple groups against each other, and we need to compare different effectors against different targets, and vice versa. We need to get a quick look."

Of course, most users of graphing programs want a "quick look." Among these five packages, most users will find one whose particular array of features will give them not only the "quick look" they want but a good-looking look at their business or scientific data. □

Product Info

BRAVO TECHNOLOGIES INC.
MacGraphX 1.0: \$199
P.O. Box 10078, Berkeley,
Calif. 94709-0078
Phone (510) 841-8552;
fax (510) 841-8559

COMPUTER ASSOCIATES INTERNATIONAL INC.
CA-Cricket Graph III 1.0: \$195

1 Computer Associates Plaza, Islandia, N.Y.
11788-7000
Phone (516) 342-5224 or (800) 225-5224;
fax (516) 342-5329

DELTAPOINT INC.
DeltaGraph Professional 2.03: \$89.95
2 Harris Court, Suite B-1, Monterey, Calif. 93940
Phone (408) 648-4000
or (800) 367-4334;
fax (408) 648-4020

SYNERGY SOFTWARE
KaleidaGraph 3.0: \$249
2457 Perkiomen Ave., Reading, Pa. 19606
Phone (215) 779-0522 or (800) 876-8376;
fax (215) 370-0548

VISUAL BUSINESS SYSTEMS INC.
GraphMaster 1.34: \$195
380 Interstate N. Parkway, Suite 190,
Atlanta, Ga. 30339
Phone (404) 956-0325; fax (404) 988-0009

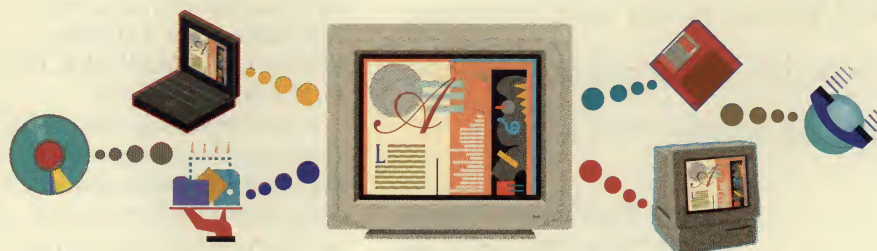
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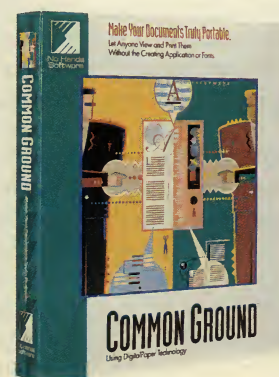
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Fast Macs straining SCSI and serial ports

Apple's hot 68040 Macs are giving out a lot of bang for the buck, but check disk, cache and serial-port details before upgrading an older machine.

BUGS & TIPS

Terminators III. The latest Macintosh models deliver strong performance and good features at competitive prices, but buyers have been wrestling with minor compatibility problems as they move up from older Macs.

Disk compatibility is the most critical issue because problems here can instantly destroy data. And there are several potential traps for the unwary, created by changes in termination, processors and operating systems as well as new SCSI controller hardware.

It is important to do a complete backup before upgrading to a new Mac, even if you plan to use the same hard disk.

Along with high-quality SCSI cables, termination is critical for data

integrity. There are several termination schemes among the newer Macs. Macs bundled with standard Apple internal drives are not a problem, but it gets trickier when you add or remove internal devices.

External termination, at least, is constant: The farthest external device on the SCSI chain requires a terminator, and no other external devices should be terminated. (Only the IIfx is different, requiring a special, black terminator with internal capacitors.)

Macs up through the Quadra 700 need to have an internal terminator installed if there is no internal drive. This becomes crucial with faster machines, such as the IIfx and Quadra 700.

The Quadra 900 and 950 have internal termination on their logic boards and also at the end of the

internal SCSI cable, so any termination must be removed from all internal devices during installation.

The Centris 610, 650, Quadra 800 and IIfx share an "automatic" termination system on the logic board. When no internal devices are installed, the internal SCSI cable should be removed, and the logic board will supply internal termination.

Normally, an internal hard disk is installed at the end of the internal SCSI cable, and this device must be terminated. Terminators must be removed, however, from any additional internal devices, such as a CD-ROM drive. They are terminated, instead, by the automatic circuit.

Be careful with multiple internal devices to avoid SCSI ID conflicts. Apple uses ID 0 for internal hard drives and ID 3 for internal CD-ROM drives. Following the same convention with third-party devices will help avoid confusion.

Driver training. Hazards posed by new processors, SCSI controllers and operating system software threaten data on disks that are still running old driver software.

Before switching to a new Mac, make sure to update your disk with an installer utility that knows about the 68040, virtual memory, and the 53C96 SCSI chip used in Centris and Quadra models.

A complete reformat is ideal, but driver software can often be updated without reformatting. This is also a good time to run Central Point Software Inc.'s Disk Bug Checker 1.1 (see MacWEEK, Feb. 15, March 1 and March 8).

If you experience problems with a particular drive after moving it to a Centris or Quadra, and both driver software and termination have been verified, it may help to disable "blind transfers" in the formatting options for the drive.

One benefit with the 68040-based Macs is much higher SCSI transfer rates with fast drives. Curiously, writes are often faster than reads in 68040-based Macs, which was never the case before. This is apparently a result of the processor's new cache.

Cache control. Some older software breaks on the '040 processor because of its new cache, but there is a quick way to test this if a program crashes. Apple's Cache Switch control panel will switch the problematic cache off and on instantly if you hold down the Option key while selecting the mode. Otherwise, it requires restarting to effect the change. Note that you may lose connections to a network when the cache is switched and have to deselect and reselect network services through the Chooser.

More-sophisticated control over caching is claimed by Spectra Sys-

Ask David Ramsey

Who's on top: Mac vs. PC

Q. Which is faster, a Mac Quadra or a 486-based IBM PC or compatible?

A. I'm tempted to say, "Who cares? CISC is dead," but I realize religious arguments simply aren't settled this way. They're not settled by facts either, but I'll take a shot at it.



Comparing the performance of two platforms isn't a straightforward process. We can all agree that a Quadra 800 is faster in all respects than an Apple IIe, but the issue isn't nearly as clear when comparing high-end Macs and PCs. Published performance tests typically compare "as delivered" configurations running cross-platform software. In some of these benchmarks, the Quodras come out looking very good compared with 50-MHz 486 machines. The June 15, 1992, issue of PC WEEK compared a 33-MHz Quadra 950 to a Compaq Computer Corp. Deskpro 486/50L. The Quadra's speed was almost triple that of the Compaq in applying an Adobe Photoshop filter and in repaginating a Microsoft Word file, but the Quadra lagged behind the Compaq in a Microsoft Excel recalc (7.1 seconds vs. 5.8 seconds).

But the May 12, 1992, issue of PC Magazine found the 25-MHz Quadra 700 to be four times slower than a 50-MHz Dell Computer Corp. PowerLine 450DE when scrolling through a WordPerfect document. Although the 700 is slower than the 950 that trounced the Compaq, it's not that much slower. Is the Mac version of WordPerfect the problem? Perhaps the compiler used to build WordPerfect on the Mac is at fault.

Issues such as this complicate the comparisons, so let's consider some "feel" tests. The feel of my home machines — a no-name 33-MHz 486 and a Quadra 800 — is about the same: I don't perceive either as being significantly faster. On the other hand, the 66-MHz 486DX2 machines I've played with at work are noticeably faster than the Quadra 950 I use in the office; programs launch faster and run faster, and a large library of generic C code used on both platforms executes faster.

If we discard all the upper-level variables, we can compare processor performance directly. For that, tune in next week.

Please send questions to David Ramsey on CompuServe: 76702,335 or to Ask David Ramsey, c/o MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105.

tems Corp.'s \$49.95 Animals 2.0 and Alys Software Corp.'s \$99.95 Compatibility 3.2. These utilities feature automatic switching of caches, depending on what application is run, and retain network connections.

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Serial switch. When Apple redesigned the serial-port hardware in the IIfx, the changes broke some programs. Apple released a control panel, Serial Switch, that toggles between Compatible and Faster modes so that these programs may be used. Quodras have the same problem, and Serial Switch 1.1 solves the problem for both models. □



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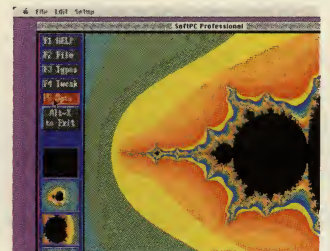
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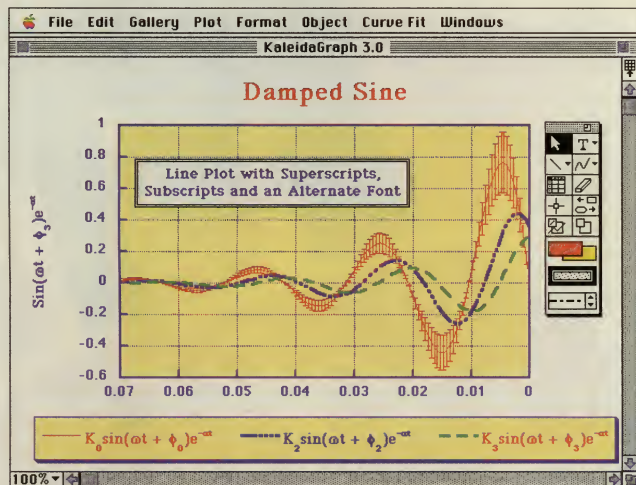
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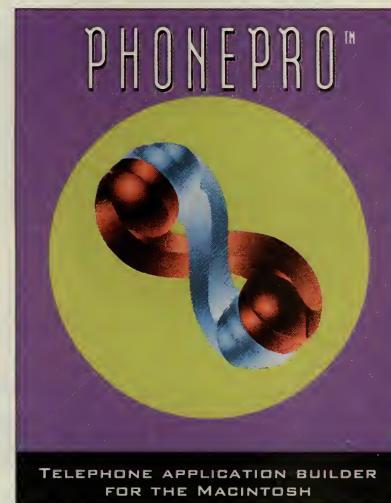
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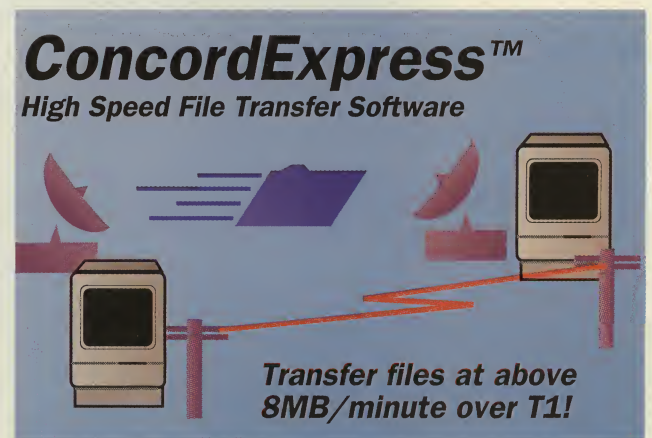
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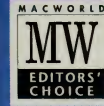
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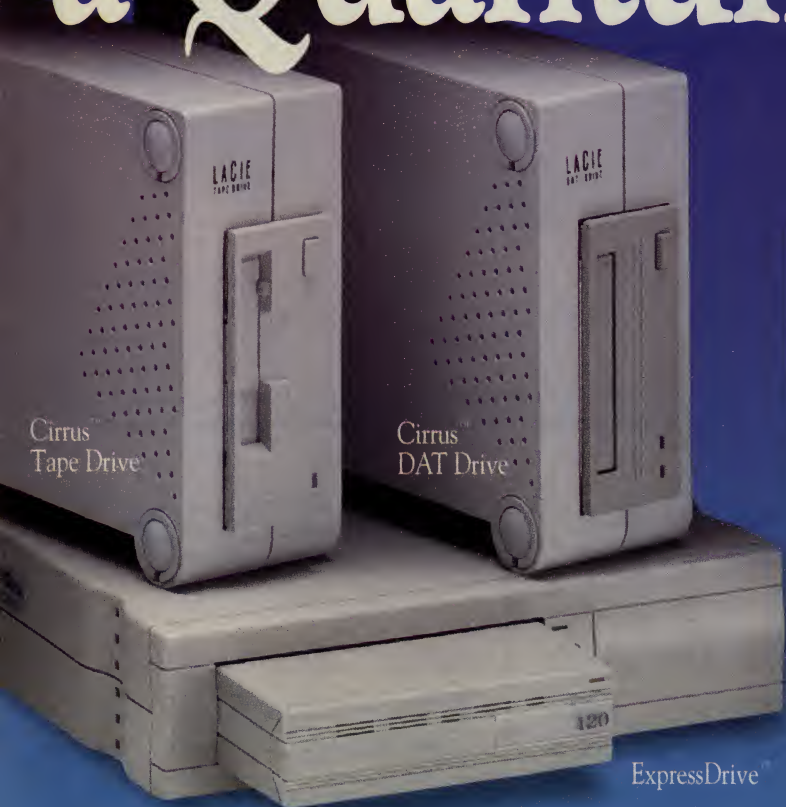
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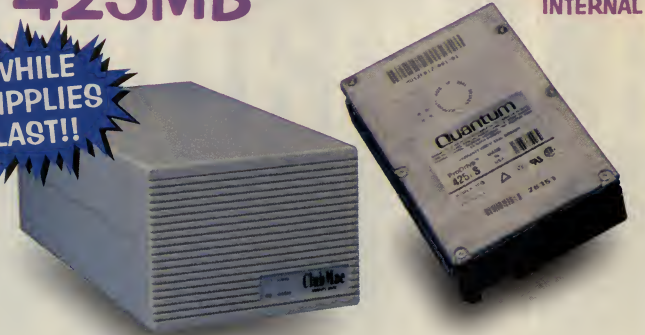
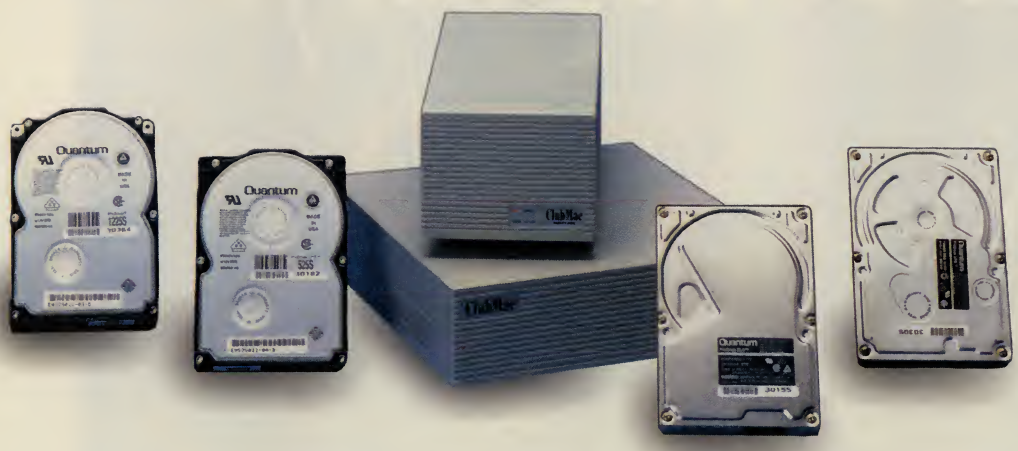
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Mac 24Xp Interface Card ..\$495

NEC's MacFG 24Xp Color Display Interface card brings you affordable 24-bit color capability for color-intensive business graphics, QuickTime, Photo CD and desktop publishing applications. Designed specifically to support NEC's 15" or 17" MultiSync Series monitors.

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If you already own a NEC 15" or 17" MultiSync Series Color Monitor, you can get a \$100 rebate when you add the NEC MacFG 24Xp Color Display Interface Card to your Mac system. HURRY!! Offer expires June 30, 1993





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MacWorld's 1993 Editor's Choice for fastest 24-bit accelerated color graphics. Provides high-performance Quickdraw acceleration on 12"-21" displays at resolutions from 512 x 384 to 1152 x 8700 pixels. QuickDraw performance boost 1,700%. Includes hardware pan and zoom, OpenSlot expansion connector, and support for up to 8MB of on-board GWorld display memory (not included). Installs in a single slot in any Macintosh II system.



SUPERMATCH 17T\$1049

Low-cost, large-screen color display for business productivity applications. This 17" color display includes multiple modes, with support for 1024 x 768 full-page-plus -- the workspace of a 20" display, 832 x 624 WYSIWYG, and 640 x 480 magnified view resolutions; "Plug-and-Play" compatibility with the motherboard graphics of the Quadras.

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PrecisionColor Pivot\$929

Color Pivot Interfaces-II, IIsi, LC, SE/30, PowerView...\$499

Pivot Display/E\$689

Pivot Interfaces for Mac II, LC, SE/30\$249

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Rocket 33.....\$1479

RocketShare.....\$399

SCSI-2 Booster.....\$249

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PRECISIONCOLOR PIVOT\$929

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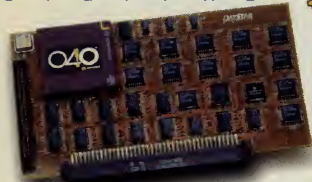


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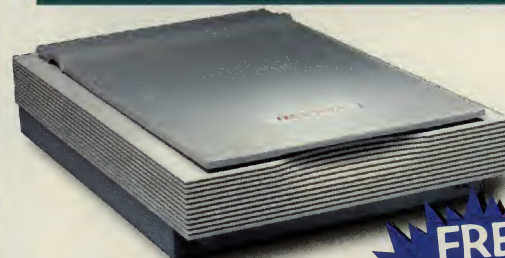
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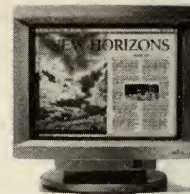
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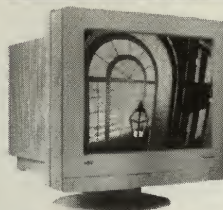
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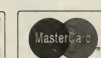
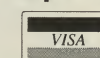
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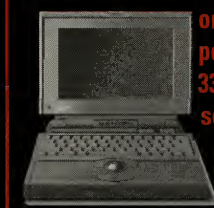
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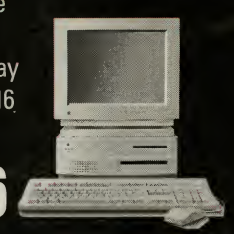
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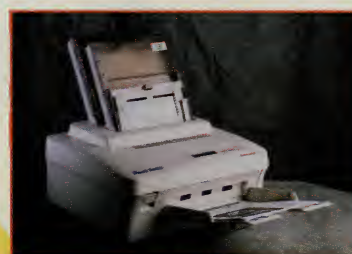
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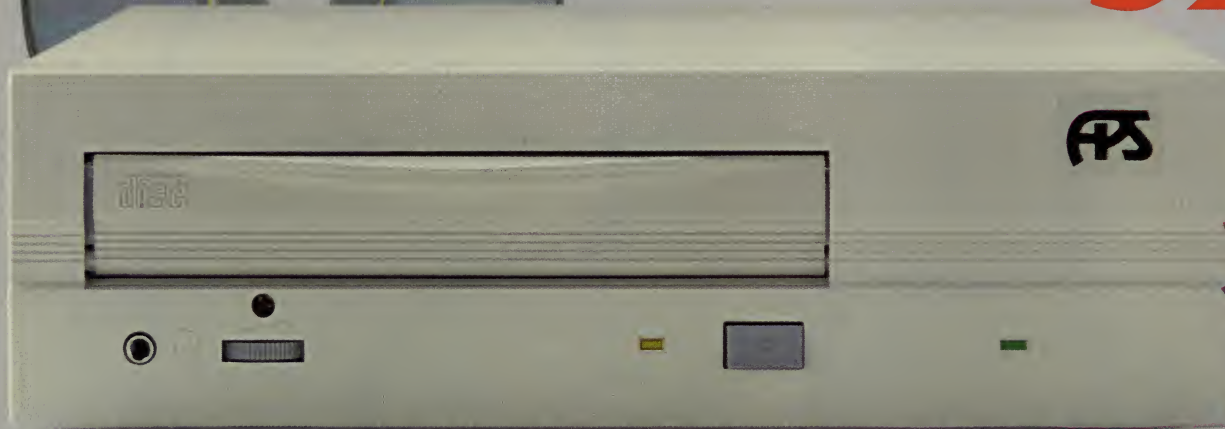
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The APS Turbo DAT is based on Archive's Turbo Python DAT Mechanism, the fastest DAT mechanism available. The APS Turbo DAT is more than 20% faster than all other DAT units and can store up to 5GB on a 90 meter tape.

DAT

Model	Internal*	External
APS TurboDAT	\$1399	\$1499
APS DAT	1099	1199

*Internal models for Quadra 900 & 950

All APS DAT Drives Include Retrospect by Dantz



APS Turbo DAT

\$1499



APS DAT

\$1199

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THE APS ADVANTAGE

POWERBOOK ACCESSORIES

MODEMS

2400 baud	
2400 baud (9600 send fax/4800 receive fax)	\$69
9600 baud v.32	\$279
14,400 baud v.32 bis	\$299

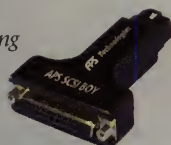
All APS Modems for the PowerBook include a 30 day Money Back Guarantee, comprehensive installation guide, and APS' Communications & Fax software.

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APS SCSI Boy **\$29**

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†Dealer Inquiries Welcome



APS POWERBOOK DRIVES



QUANTUM GO-DRIVES

Model	Internal	AC/DC Case
APS 80GRS [†]	\$279	\$409 [†]
APS 120 [†]	329	459 [†]
APS 160GRS [†]	479	609 [†]

†Battery-Powered Companion Case for the PowerBook

TOSHIBA

APS T 213 [†]	569	699 [†]
------------------------	-----	------------------

Toshiba 2224 mechanism

†Battery-Powered Companion Case for the PowerBook



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- Disk-for-disk replacement warranty • SyQuest, most Quantum, Maxtor and Fujitsu drives are warranted for two years. Micropolis and Fujitsu drives are warranted for five years. WREN, Quantum 2.5" drives, TEAC drives, all CD-ROMs, MOs and SyQuest carts are warranted for one year. Toshiba is warranted for three years.
- Prices and specifications subject to change without notice.

- Refused orders subject to restocking fee.
- All our hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh. All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software, at least 9.2 MB of compacted publicly-distributable software, and APS Technologies' ALLIANCE POWER TOOLS SCSI formatter/hard disk partitioner.
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APS 600 MB Tape Back Up	699

All APS Tape Drives Include Retrospect by Dantz



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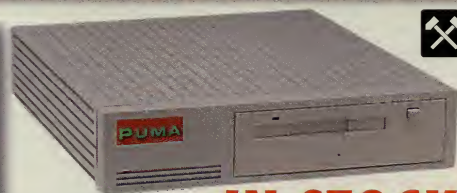
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CONNER

Unformatted Capacity	Access Time	Internal	External
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85 mb LPS	17 ms	\$178	\$238
170 mb LPS	12 ms	\$248	\$298
212 mb LPS	9 ms	\$328	\$388
540 mb	8.5 ms	\$848	\$898

QUANTUM

ELS Series (3.5" Low Profile and Low Power Drives)			
85 mb	17 ms	\$189	\$248
127 mb	17 ms	\$218	\$278
170 mb	17 ms	\$248	\$298
LPS Series (3.5" Low Profile and Low Power Drives)			
240 mb	10 ms	\$318	\$378
525 mb	10 ms	\$848	\$898
Prodrive Series (3.5" Half Height Drives)			
1.0 Gig	10 ms	\$1148	\$1198
1.2 Gig	10 ms	\$1298	\$1348
GO•Drive 2.5" Hard Drive (All Quantums - 2 year Warranty)			
160 mb	17 ms	\$499	\$599

TOSHIBA

3.5" & 2.5" Disk Drives (2 year Warranty)			
2.5" 213 mb	12 ms	\$548	\$648
3.5" 830 mb	12 ms	\$1029	\$1089
3.5" 1.2 Gig	12 ms	\$1248	\$1298

FUJITSU

3.5" & 5.25" Disk Drives (5 year Warranty)			
3.5" 520 mb	9 ms	\$768	\$858
3.5" 1.1 Gig	8.5 ms	\$1498	\$1568
5.25" 1.2 Gig	11.5 ms	\$1178	\$1278
5.25" 2.06 Gig	11.5 ms	\$2098	\$2198
5.25" 2.4 Gig	11.5 ms	\$2298	\$2378

SEAGATE

3.5" Half Height Drives (1 and 5 year Warranties)			
1.2 Gig	10.5 ms	\$1128	\$1198
Wren and Elite Series (5.25" Full Height Drives)			
Wren 7 1.2 Gig	15 ms	\$1128	\$1228
Wren 8 1.6 Gig	15 ms	\$1328	\$1408
Wren 9 2.1 Gig	12.5 ms	\$1698	\$1788
Elite 1 1.6 Gig	11.5 ms	\$1798	\$1888
Elite 2 2.4 Gig	11 ms	\$2398	\$2488
Elite 3 3.4 Gig	11 ms	\$2948	\$3048

Media

Model	QTY	1 SPK	10PK	Model	QTY	1 SPK	10PK
SyQ44 cart	\$67	\$65	\$63	128mb OPT	\$39	\$37	\$35
SyQ 88 cart	\$107	\$104	\$99	256mb OPT	\$86	\$84	\$79
SyQ 105 cart	\$79	\$76	\$72	90mm DAT	\$19	\$17	\$14

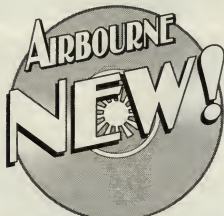
Modems

PROMETHEUS

All units come with MacFAX & MacKnowledge Software		Price
Ultima Home Office		
ext 14.4/14.4SR Fax w/ V.42 bis & voice		\$398
Promodem 144i Internal for Powerbook		
14.4/14.4SR Fax w/ V.42 & V.42 bis		\$268
Promodem 144e		
ext 14.4/14.4 SR Fax w/ V.42 & V.42 bis		\$258
Promodem 24e ext 24/96SR Fax w/ V.42 & V.42 bis		\$128
Promodem Mini 2400 2400 BPS mini, data only		\$79

ZOOM TELEPHONICS

All units come with Microphone LT & STF FAX Software		Price
Faxmodem PBK for Internal Powerbook		
96/48 SR Fax w/2400 BPS Modem		\$99
Faxmodem PKT Portable		
96/48 SR Fax w/2400 BPS Modem		\$109
Faxmodem FXV		
V42 bis/MNP5/2400 BPS, 96/96 SR Fax		\$129
Faxmodem VFX V.32		
V.32 bis, 14.4 data & fax, V.42 bis/MNP5		\$258



CD ROMS



Toshiba 3401 Ext Drive \$498
 200ms, Multisession, DualSpeed, SCSI-II

Texel DM-3024 Ext Drive \$428
 265ms, Multisession, DualSpeed, SCSI-II

NEC Intersect Ext Drive \$169
 625ms, Model CDR 25, Single Session, Single Speed, SCSI-I

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- MACnificent 7 Education & Games for System 7
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- Animals - San Diego Zoo • Lucas Game Pack
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All Scanners includes free software

Model	Price
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UC1200s - Color w/free Photoshop v2.5	\$2948
UC840 - Color w/free Photoshop v2.5	\$1248
Transparency Unit	\$698
Auto Document feeder	\$398
UG630 - Greyscale w/free Typereader	
OCR, OFOTO & Publish It	\$848

Accelerators

DAYSTAR DIGITAL

Model	Without FPU	with FPU
33 MHZ Powercache	\$375	\$465
40 MHZ Powercache	\$545	\$635
50 MHZ Powercache	\$714	\$845
Powercache Adapter		\$40
Fast Cache IIsi	\$279	\$349
Fast Cache Ilici		\$199
Fast Cache Quadra 700, 900		\$249
Fast Cache Quadra (all)		\$375
33 MHZ Turbo 040		\$1345
Fast Cache Turbo 33-128k		\$179
Charger for Photoshop		\$799

Optical & DAT Drives

Includes one free disc (1 year Warranty)

128 mb Panasonic Optical	39 ms	\$878
128 mb Epson Optical	29 ms	\$988
256 mb Most Optical	31 ms	\$1598

Unformatted Capacity	W/Retropect	W/Retropect Remote
Includes free 90m Tape & Retropect or Retropect Remote software		
WangTek 2.1 Gig DAT	\$998	\$1198
WangDat 5.0 Gig DAT	\$1298	\$1498

SyQuest

UnformattedCapacity	Access Time	Price
Includes one free cartridge (2 year Warranty)		
44 mb External	19 ms	\$378
88C mb External	19 ms	\$568
105 mb External	14.5 ms	\$728

Memory

Model	60 NS	70 NS	80 NS	Model	60 NS	70 NS	80 NS
1x8	Call	\$37	Call	2x8	Call	\$66	Call
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We carry most Mac Memory, Please Call for prices!

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128mb cartridges (Tosoh)			\$35

FUJITSU NEW!

Model	Speed	Size	External
128mb	30ms	3.5"TH	\$1049
128mb cartridges (Tosoh)			\$35

Maxtor®

Model	Speed	Size	External
Tahiti IIM	35ms	1.0gb	\$3095
1.0gb Optical Glass Cartridge			\$225

All MO drives come with FWB™ HDT software, one MO cartridge and have a ONE year Warranty.

SHARP

Model	Speed	Size	External
650mb	40ms	3.5"HH	\$2095
650mb Cartridge			\$95

THE ONLY 5.25" HH 650MB OPTICAL ON THE MARKET!

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SPECIAL!
2.0gb DAT
- \$999 -

Model	External
2.0gb Standard	\$999
4.0gb - 8.0gb Compression Turbo	\$1399
90m / 60m Tape	\$16 / \$13

TEAC

Model	External
150mb Tape Backup Drive	\$489
600mb Tape Backup Drive	\$689
600mb / 150mb Tape Cassette	\$27 / \$18

All tape backup drives come bundled with FREE Retrospect V.2.0, one tape and have a ONE year warranty.

CD-ROM DRIVES

TOSHIBA

Model	Speed	Size	External
600mb	200ms	3.5"HH	\$539

TEXEL NEW!

Model	Speed	Size	External
600mb	265ms	3.5"HH	\$499

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CD-ROMs are Dual-Speed & Kodak
Photo-CD/Multi-session compatible.
Bundled with FWB™ CD-ROM Tool Kit.
Toshiba and Texel carries a ONE year
Warranty.



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Half Height 3.5"	\$75
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Internal SyQuest 44mb (for Quadra 900 & 950)	\$349
Internal SyQuest 88mb (for Quadra 900 & 950)	\$449
Internal SyQuest 88mb C (for Quadra 900 & 950)	\$529
External SyQuest Dual 44mb (One Cartridge Inc.)	\$665
External SyQuest Dual 88mb (One Cartridge Inc.)	\$845
External SyQuest Dual 88C mb (One Cartridge Inc.)	\$999
External SyQuest Dual 44/88C mb (One 44 & One 88 Cartridge)	\$945
SyQuest 44mb Cartridge/10 Pack	\$62.50 / \$610
SyQuest 88mb Cartridge/5 Pack	\$96.50 / \$475
SyQuest 105mb Cartridge/5 Pack	\$71 / \$350

All SyQuest Drives come with FWB™ HDT Formatting Software. SyQuest carries a TWO year Warranty on Drives and ONE year on Cartridges. *READS AND WRITES 44 AND 88 CARTRIDGES. Does not format 44 cartridges.



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Model	Capacity	Size	Seek	RPM	External
3100E	128mb	3.5"HH	45ms	3000	\$995
5031E	650mb	5.25"FH	28ms	3600	\$2295
128mb/650mb Cartridge (Tosoh/3M)					\$35 / \$95

- ISO Certified/Industry Standard
- External Kits include all necessary cables, one optical media, and FWB™ HDT Formatting Software.
- One year warranty

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Powerbook 145 4/40 - 4/80	\$2049 / \$2389
Powerbook 160 4/40 - 4/80 - 4/120	\$2319 / \$2659 / \$2999
Powerbook 180 4/80 - 4/120	\$3919 / \$4269

Powerbook 165 Color 4/80 - 4/120	\$2799 / \$2999
Classic Color 4/80 SPECIAL!	\$1349
LC III 4/80 - 4/160	\$1289 / \$1429
IIIX 4/80 - 4/230 - 5/80 w/CD-Rom	\$1499 / \$1699 / \$1799

Centris 610 4/80 w/ Ethernet	\$1749
Centris 610 8/230 w/ CD-ROM	\$2599
Centris 650 8/230 w/ CD-ROM	\$3599
Quadra 950 8/0	\$4639
Quadra 800 8/230 - 8/500 w/CD-ROM	\$3999 / \$4999

Apple Adjustable Keyboard	\$215
Apple 14" / 16" Color Monitor	\$529 / \$1279

StyleWriter II	\$339
Apple LaserWriter Pro 600/630	\$1999 / \$2419

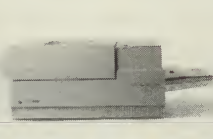
Apple Color Printer	\$2239
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PowerBook Cables (HDI 30-25 or 50)	\$35
External Battery Recharger for PowerBook	\$149
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PowerPad-Sophisticated Circuits	\$79
Auto Power Adapter/Empire Engineering	\$89
AE AxCell (Cellular Phone Interface)	\$270
AE DataLink PB	\$473
AE Powerbook Auto Adapter	\$66

Duos:	
Duo Floppy Adapter	\$135
HDI-20 Ext. 1.44mb Floppy Drive	\$199
Duo A/C Adapter	\$69
Duo Rechargeable Battery	\$69
Duo Dock	\$975
Apple Mouse II	\$79

Carrying Cases:	
I/O Design Ultimate SL/EX - nylon	\$69 / \$79



Quantum

"An Apple Authorized Brand"

Formatted

Capacity	Speed	Size	Internal	External
ELS 42mb	19ms	3.5"TH	\$169	\$229
ELS 85mb	17ms	3.5"TH	\$195	\$255
ELS 127mb	17ms	3.5"TH	\$219	\$279
ELS 170mb	17ms	3.5"TH	\$235	\$295
LPS 240mb	10ms	3.5"TH	\$325	\$385
LPS 525mb	10ms	3.5"TH	\$829	\$889
Pro 700mb	10ms	3.5"HH	\$1049	\$1109
Pro 1.05gb	10ms	3.5"HH	\$1125	\$1185
Pro 1.22gb	10ms	3.5"HH	\$1275	\$1335
GRS-80mb	16ms	2.5"PB	\$285	\$385
GO-120mb	16ms	2.5"PB	\$335	\$435

TWO year Warranty. ONE year Warranty on GO drives. FWB™ HDT Formatting Software Included.

TOSHIBA

SPECIAL!
Toshiba 830ms Int. \$939

Formatted

Capacity	Speed	Size	Internal	External
877mb	12.5ms	3.5"HH	\$939	\$999
1.23gb	12.5ms	3.5"HH	\$1089	\$1149
213mb	12ms	2.5"PB	\$545	\$645

Toshiba carries a THREE year Warranty. FWB™ HDT Formatting Software Included.

FUJITSU

SPECIAL!
Fujitsu 1.2gb Int. \$1395

Formatted

Capacity	Speed	Size	Internal	External
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1.0gb SPECIAL!	9ms	3.5"HH	\$1395	\$1455
1.03gb	15ms	5.25"FH	\$1179	\$1279
1.65gb	15ms	5.25"FH	\$2119	\$2219
2.05gb	12ms	5.25"FH	\$2299	\$2399

FIVE year Warranty. FWB™ HDT Formatting Software Included.

CONNER "An Apple Authorized Brand"

Formatted

Capacity	Speed	Size	Internal	External
82mb	17ms	3.5"TH	\$189	\$249
160mb	13ms	3.5"TH	\$245	\$305
206mb	12ms	3.5"TH	\$319	\$379
515mb	10ms	3.5"HH	\$859	\$919

TWO year Warranty. FWB™ HDT Formatting Software Included.

MICROPOLIS "Novell Certified"

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Capacity	Speed	Size	Internal	External
1.05gb	10ms	3.5"HH	\$1159	\$1219
1.33gb	15ms	5.25"FH	\$1379	\$1479
1.75gb	10ms	3.5"HH	\$1919	\$1979
2.1gb	12ms	5.25"HH	\$2459	\$2559
3.0gb	15ms	5.25"HH	\$3099	\$3199

FIVE year Warranty. FWB™ HDT Formatting Software Included.

Maxtor®

SPECIAL!
1.15gb 3.5"HH 6300RPM \$1399

Formatted

Capacity	Speed	Size	Internal	External
120mb	15ms	3.5"TH	\$209	\$269
203mb	15ms	3.5"TH	\$299	\$359
520mb / 6300 RPM	9ms	3.5"HH	\$899	\$959
1.15gb/6300 RPM	9ms	3.5"HH	\$1399	\$1459
1.0gb	13ms	5.25"FH	\$1179	\$1279
1.43gb	13ms	5.25"FH	\$1429	\$1529

ONE and TWO year Warranty on 3.5" Drives and TWO Years on 5.25" Drives. FWB™ HDT Formatting Software Included.

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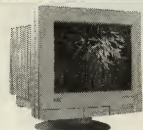
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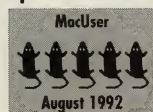
NOW CHECK OUT THE SAVINGS!

NEC

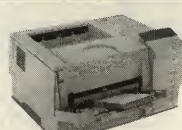
MultiSync 3FG - 15" Monitor	\$635
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MultiSync 5FG - 17" Monitor	\$1145
MultiSync 5FG - 17" Monitor	\$1345
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SilentWriter 95F Printer	\$1289
SilentWriter 95FX Printer	\$1529
SilentWriter 97F Printer	\$1569
SilentWriter 97FX Printer	\$1809
ColorMate PS-40 Color Printer	\$3399
2mb upgrade for printers	\$95



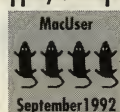
- NEC MultiSync 5FG Monitor
- 17" Multi-Frequency Color Monitor
- AccuColor Control System
- Up to 1024x768 resolution



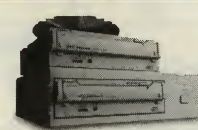
\$1345



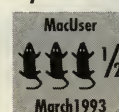
- NEC SilentWriter Model 95f Laser Printer
- PostScript Level 2
- Envelope feeder and cassette included
- 6ppm/300dpi/2mb RAM



\$1289



- NEC CDR-74 CD-ROM Reader
- 280ms access time
- Photo-CD/Multisession compatible
- 2-year warranty

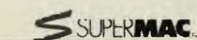


\$625

— Get a **\$250 rebate** from NEC with the purchase of any printer. Offer ends 6/30/93 —

— Get a **\$100 rebate** from NEC with the purchase of a MacFG 24XP card with either a 15" or 17" MultiSync FG monitor. Offer ends 6/30/93 —

VIDEO



ThunderStorm Pro	\$2819
ThunderLight	\$1759
Spectrum/24 Series IV	\$839
Thunder 8	\$1149
Spectrum/8.24 PDQ	\$799
Spectrum/8.24	\$619
Spectrum/8 LC-SI/NUBUS	\$429/\$359
SuperMatch 21" TPD Color	\$2469
SuperMatch 20" DM Trinitron	\$2509
SuperMatch 20" Color	\$1539
SuperMatch 17" MM Color	\$1059
SuperMatch 17-T Trinitron	\$1099
Platinum 21" TPD	\$1059
Platinum 20" TPD	\$879
Spigot & Sound	\$509
Spigot & Sound Pro	\$1149



RasterOps

21" Mono/Gray-Scale Monitor	\$999
21" Color Hitachi	\$2319
20" Color Trinitron MultiScan RO	\$2349
20" Color Hitachi MultiScan	\$1339
24 STV Interface	\$769
24 SX Interface	\$619
24 XLI Interface	\$1929
Paintboard II	\$829

radius

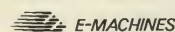
Color Display/21	\$2399
IntelliColor Display/20 NEW!	\$2689
PrecisionColor Display/20s	\$2399
PrecisionColor 19	\$2099
PrecisionColor Pivot	\$969
PrecisionColor 24X Interface	\$1559
PrecisionColor 24XK Interface	\$839
PrecisionColor 24XP Interface	\$499
PrecisionColor 8XJ Interface	\$499
VideoVision (Basic)	\$1679
VideoVision (Presentation)	\$2019
Rockets 25i/Rockets 33	\$999/\$1479
RocketShare/SCSI-2 Booster	\$419/\$249
Powerview	\$499



SONY

1430 - 14" Color Trinitron	\$669
1320LC - 14" Color Trinitron for LC	\$429
1730 - 16" Color Trinitron NEW!	\$1089

Includes MAC Adaptor. Quadra compatible.



ColorPage T16 II	\$1409
Futura SX - 24 bit accelerated	\$509
Double Color SX - 8 bit accelerated	\$379
PowerLink Presenter	\$479

DIGITIZING TABLETS

Wacom

6x8 Artz	\$309
6x9 Standard Tablet	\$462
12x12 Standard Tablet	\$660
12x12 ElectroStatic Tablet	\$726
12x18 Standard Tablet	\$990
12x18 ElectroStatic Tablet	\$1058



MACINTOSH SIMMS

1x8/2x8/4x8/16x8 @ 80ns	\$CALL
Quadra 700/950	\$CALL
4x8/16x8	\$CALL
Powerbook 140/170	\$CALL
4mb/6mb	\$CALL
Powerbook 160/180	\$CALL
4mb/6mb/8mb/10mb	\$CALL
Duo 210/230	\$CALL
4mb/6mb/8mb/10mb	\$CALL
PC 1x9/4x9	\$CALL
Co-Processors 16M.Hz for LC-LCII/20MHz for SI	\$CALL
NEW 32-BIT SIMMS	\$CALL
4x8/8x8/16x8 @ 70ns - Centris & LCIII	\$CALL
4x8/8x8/16x8 @ 60ns - Quadra 800	\$CALL

PLEASE BE AWARE THAT SIMM PRICES ARE CHANGING ON A DAILY BASIS.

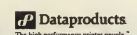
PRINTERS



WriteMove II	\$519
WriteImpact 24-Pin	\$519
PLPII 1mb/4ppm/300dpi	\$779
BLPII 2mb/4ppm/300dpi	\$1469
BLP Elite 2mb/4ppm/300dpi	\$1109
WideWriter 360 512k/360dpi	\$1469



Deskwriter	\$409
Deskwriter 550-C	\$769
LaserJet 4M	\$1999



Dataproducts LZR 1560	\$2999
Two Trays: Letter and Legal. 15ppm/300-400dpi	
with 4mb RAM upgradeable to 8mb. Postscript Level 2.	
4mb RAM upgrade	\$349
Toner	\$289



MicroLaser Plus PS-17 with Appletalk	\$1179
MicroLaser Plus PS-35 with Appletalk	\$1299
MicroLaser Turbo with Appletalk	\$1459
AppleTalk Kit	\$49
1mb upgrade for PS-17/PS-35/Turbo	\$49
Toner Cartridge	\$49

SCANNERS

UMAX

UC - 1200s with Adobe Photoshop™ v2.5 FV	\$2999
UC - 840 with Adobe Photoshop™ v2.5 FV	\$1299
UC - 630 with Adobe Photoshop™ v2.5 FV	\$1099
UG - 630 with Typereader OCR	\$899
Automatic Document Feeder	\$499
Transparency / Slide Scanner Option	\$699

MICROTEK

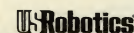
ScanMaker II w/Adobe Photoshop LE	\$895
ScanMaker IIx w/Adobe Photoshop FV	\$1195

SHARP

JX-320 SUPER SPECIAL!	\$899
JX-450	\$3899
JX-610	\$9899

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SUPER SPECIAL!	\$249
WorldPort FAX	\$459
Courier v.32 bis (Data only)*	\$399
Courier v.32 w/FAX*	\$419



Global Village



TelePort Bronze 24/96	\$179
TelePort Silver 96/96	\$359
TelePort Gold 14.4/14.4	\$419
PowerPort Bronze 24/96	\$189
PowerPort Silver 96/96	\$359
PowerPort Gold 14.4/96	\$419

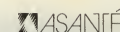
PSI



COMstation One	\$135
COMstation Two	\$235
COMstation Four	\$345
COMstation Five	\$415
PowerModem I	\$125
PowerModem II	\$225
PowerModem III	\$315
PowerModem IV SUPER SPECIAL!	\$375

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MC3NB - Thick/Thin/10 Base T, 64k	\$199
MC+IIE64 - Thick/Thin, 64k	\$149
MC+IIE64 - Thick/10 Base T, 64k	\$149
MC+LCII - Thin/10 Base T, FPU Socket	\$199

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DualPort IIsi	\$169
Turbo 040 25 MHz / 33MHz/40MHz	\$1099/\$1369/\$2049
FastCache Turbo 25, 33 & 40MHz - 128k cache for Turbo 040	\$169
FastCache Quadra (700, 900 & 950) - 128K	\$339
FastCache Quadra (700, 800, 900 & 950) - 128K	\$389
PowerCache 33MHz OR w/ FPU	\$375/\$459
PowerCache 40MHz OR w/ FPU	\$545/\$635
PowerCache 50MHz OR w/ FPU	\$715/\$845
PowerCache Adapters*	\$41

* Additional on all PowerCache cards except for IIsi



FastMath - FPU LCIII - 25MHz	\$109
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3.5 Mac Drive (External 1.44)	\$229
QuadraLink (4 Port Serial for Mac IIs)	\$199
TransWarp LC - 25MHz or w/FPU	\$319/\$419
TransWarp LC - 33MHz or w/FPU	\$409/\$419
TransWarp LC - 40MHz or w/FPU	\$409/\$539
TransWarp SE - 25MHz or w/FPU and 40MHz or w/FPU	\$185/\$309/\$259/\$389
TransWarp Classic - 25MHz or w/FPU and 40MHz or w/FPU	\$185/\$309/\$259/\$389

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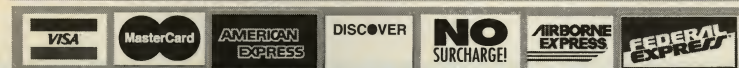
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Quadra 800/Trinitron Intermediate Graphics Solution. Quadra 800 with 8 MB of RAM, 230 MB hard drive, RealTech 20" Trinitron monitor, and KeyTronic MacPro Plus extended keyboard.

LC III, 4 MB of RAM, 80 MB hard drive, RealTech 15" Full Page Display, and Apple standard keyboard **\$1799**

Centris 610, 4 MB of RAM, 80 MB hard drive, Mitsubishi 14" Diamond Scan monitor, and KeyTronic MacPro Plus extended keyboard **\$2355**

Centris 650, 8 MB of RAM, 230 MB hard drive, RealTech 20" Trinitron color monitor, RasterOps PaintBoard Li with built-in Ethernet and FPU, and KeyTronic MacPro Plus extended keyboard **\$6229**

Quadra 950, 8 MB of RAM, 560 MB Micropolis hard drive, RasterOps 20" Trinitron, and KeyTronic MacPro Plus extended keyboard **\$8049**

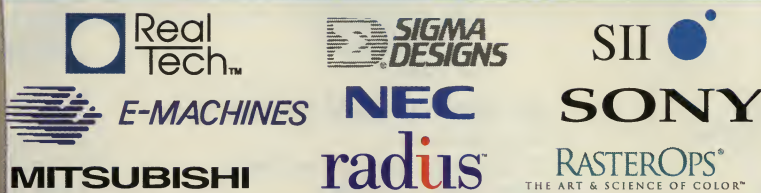


POWERBOOKS

PowerBook Duo 210 8/80 **\$2499**
PowerBook Duo 230 8/80 **2859**
PowerBook 160 8/40 **2679**
PowerBook 165c 4/80 **3399**
PowerBook 180 8/80 **4359**

PowerBook Portable Docks
PowerLink Presenter (8-bit) **\$429**
Designed for presentations. Connects the PB Duo to almost any type of video screen. The ideal travel dock.

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Connects to Ethernet networks, color displays, external SCSI devices, etc.



MONITORS

21" Monitors	
NEC 21" 6FG Color	\$2699
Radius 21" Color	2399
SuperMac 21" Mono/Grayscale	1029
20" Monitors	
Radius Intellicolor 20i	\$2759
RasterOps 20/20™ MultiScan	1499
RealTech 20" Trinitron Multi-Mode	1895
SuperMac 20" (SuperMatch)	1499
SuperMac 20" (SuperMatch 20•T Multi-Mode XL)	2559
17" Monitors	
Mitsubishi 17" Diamond Pro	\$1199
NEC 17" 5FG Color	1299
Seiko Instruments 17" (CM1760LR)	1089
Sony 17" 1730	1149
SuperMac 17" (SuperMatch)	1029
SuperMac 17" Trinitron	1059
16" Monitors	
E-Machines 16" Color (ColorPage T16II)	\$1299
RasterOps Sweet 16	1199
15" Monitors	
NEC 15" 3FG Color	\$719
NEC 15" 4FG Color	849
Radius 15" Precision Color Pivot	989
RealTech 15" Grayscale	449
Sigma 15" Grayscale (PageView GS)	589
Sigma 15" Grayscale (Power Portrait)	659
14" Monitors	
Mitsubishi 14" Diamond Scan	\$419
Sony 13" Color 1430	689

VIDEO CARDS

E-Machines	
ColorLink DC/T	\$489
ColorLink SX/2	629
Futura SX24	469
DoubleColor LX (8)	629
SuperMac	
Spectrum/24 PDQ Plus	\$1459
Spectrum/8NuBus	409
Spectrum/8LC II, IIsi	339
Spectrum/24 Series IV	799
Spectrum/8•24 PDQ	759
Spectrum/8•24	579
Video Spigot*	369
Video Spigot & Sound*	479
Thunder 24	2159
ThunderLight	1669
RasterOps	
PaintBoard Li (24 bit)	809
ProColor 32	\$3069
8XL	479
24STV*	799
Media Time	1599
Radius	
Precision Color 24X	\$1549
Precision Color 8X	519
Precision Color 24XK	849
Precision Color 24XP	519
Video Vision*	1999

*24-bit; captures up to 30 frames per second

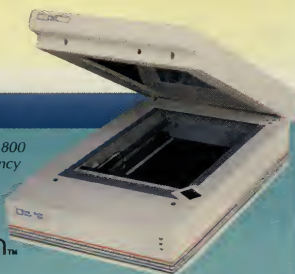


MICROTEK

Microtek Scanmaker II	\$909
Microtek Scanmaker IIXE	1,179
RealTech Scan 800	1,099
w/Photoshop	1,299
RealTech Scan 800 w/Transparency Option	1,595

SCANNERS

RealTech Scan 800 with Transparency Option



UMAX UC 630	\$1,119
UMAX UC 630 w/Transparency Option	1,848
UMAX UC 840	1,329
UMAX UC 840 w/Transparency Option	2,058

COLOR PRINTERS

RasterOps CorrectPrint 300i Dye Sublimation Printer w/36 MB	\$6,995
RealTech Color 350	5,995
QMS 210	4,699
Seiko Instruments Personal ColorPoint PSE	\$2,699
Seiko Instruments Personal ColorPoint PSX	5,599

LASER PRINTERS

Portables	
Kodak Diconix 180si	\$299
Kodak Diconix 701 Inkjet	449
Letter Size	
Digital DEClaser 1152	\$995
NEC Silentwriter Model 95	1469
NEC Silentwriter 95fx	1729
NEC Silentwriter 97	1769
NEC Silentwriter 97fx	2059
NewGen PS 880p	2119
Texas Instruments MicroLaserPlus	1099
Texas Instruments MicroLaserXL Turbo	2795



TI MicroLaser Plus

Tabloid Size	
NewGen PS 660B	\$4059
QMS 860 Hammerhead	4279



\$1,895

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*Real Tech 20" Trinitron Multi-Mode

ACCELERATORS



NEW! Turbo 040 Accelerators

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33 MHz Turbo 040	1349
FastCache Turbo 040	179

Universal PowerCache Accelerators

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33 MHz Accelerator	\$379
40 MHz Turbo 040 w/Fast Cache	2029
40 MHz Accelerator	549
50 MHz Accelerator	719
PowerCache Adapter	40

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Charger	\$799
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radius ROCKET™

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Radius Rocket 33	1549
SCSI II Booster	249
Rocket Share	419



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FastPath 5R Router/Gateway	\$1669
NetBridge	589
EtherGate Router	1239
NetSerial	269
NetModem/E	1409
NetModem v.32 (for LocalTalk)	989
LanRover/L	579
LanRover/E (4-port)	1659
TeleBridge	589

Dayna EtherPrint

Supports AppleTalk Phase 1/2 protocols; divides network into multiple zones.

Dayna EtherPrint	\$335
Dayna EtherPrint Plus	439

MODEMS

MassMicro FM 24/96 Network	\$359
MassMicro FM 24/96 Personal	165

Global Village PowerPort-Gold	399
Global Village PowerPort-Silver	339
Global Village PowerPort-Bronze	189



Supra v.32	\$289
Supra v.32 bis (14,400)	299

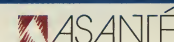
SupraFax Modems include STF and Microphone software, and are backed by a 5-year warranty.

SupraFax Modem Plus	\$159
SupraFax 144 PB	299
SupraFax 144 PB Plus	399



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10Base-T Hub/8	\$255
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DaynaPORT E/II-T NuBus Card	\$149
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DaynaPort E/Z. Ideal for Macs that don't have a slot for a network interface card. DaynaPORT E/Z

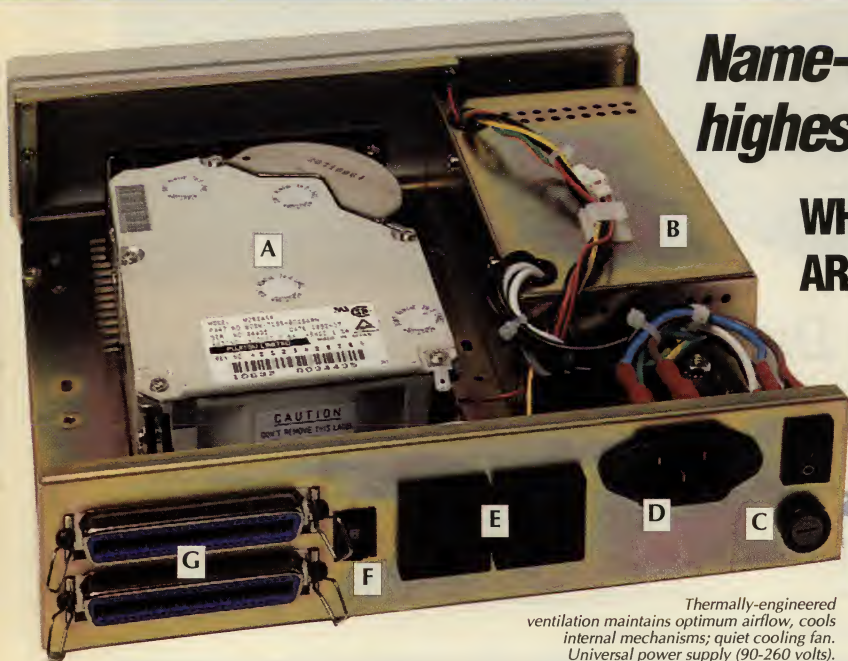
Dayna Transceiver	75
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(29 ms access time;

1 yr. warranty).....\$1069

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5-pack.....\$1229

Maxoptix Tahiti II Drive

(652/1.0 GB capacity;

35 ms access time;

1 yr. warranty).....\$3269

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Includes Retrospect 2.0

backup software.

TEAC 155 MB Drive...\$499

TEAC 600 MB Drive\$699

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DDS-DC Drive (2-8 GB capacity; 1 yr.

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DC compression on a 90-meter tape. Depending on

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SYQUEST®

44 MB Drive\$389

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652 MB M-O Cartridge.....\$159

1.0 GB ZCAV M-O Cartridge.....\$199

155 MB TEAC Tape.....\$19

600 MB TEAC Tape.....\$28

60-meter DAT Tape.....\$13

90-meter DAT Tape.....\$16

44 MB SyQuest Cartridge.....\$63

88 MB SyQuest Cartridge.....\$97

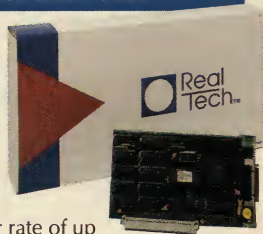
REALTECH DRIVE UTILITIES SOFTWARE

Included with your drive, for efficient operation. Disk partitioning; password protection; diagnostic testing; multiple SCSI-bus support; extensive on-line help; and more. Also included with your drive, System 7.0.1.

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Allows all NuBus Macs to communicate with newer, high-performance hard drives at substantially faster transfer rates.

Sustained transfer rate of up to 4.4 MB per second, plus a burst transfer rate of 6 MB per second (6/10 on a Quadra). Mirroring capabilities.....\$299



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	Model number	Internal price	External price	Formatted Mac capacity (in MB)	Average access time (in ms)	Transfer rate* (in Mb/second)	Form factor**	Warranty (years)
80 - 120 MB								
Conner 85	CP-30080E	\$209	\$279	82	17	1.5	LP	1
Quantum 85	ELS85	205	275	82	17	1.4	LP	2
Conner 120	CP-30100	259	329	116	17	1.5	LP	1
Maxtor 120	7120	209	279	121	15	1.5	LP	2
120 - 250 MB								
Quantum 127	ELS127	\$259	\$329	124	17	1.4	LP	2
Conner 170	CP-30170E	289	359	160	9	1.5	LP	1
Quantum 170	ELS170	279	349	160	17	1.4	LP	2
Conner 212	CP-30200	369	439	206	12	2.5 ¹	LP	1
Maxtor 213	7213	299	369	207	15	2.8 ¹	LP	2
Quantum 240	LPS240	369	439	234	10	1.4	LP	2
Maxtor 245	7245	329	399	245.6	15	3.0 ¹	LP	2
320 - 570 MB								
Maxtor 340	LXT-340	\$599	\$669	324	15	2.1 ¹	HH	2
Fujitsu 520	M2624FA	819	889	496	9	2.7 ¹	HH	5
Quantum 525	LPS525	929	999	525	10	2.9 ¹	LP	2
Maxtor 540	MXT-540	919	989	546	9	5.5 ²	HH	2
Conner 540	CP-3540	899	969	515	12	5.5 ²	HH	1
Micropolis 560	M2105	1049	1119	532	10	5.0 ²	HH	5
700 MB - 1.3 GB								
Quantum 700	PRO700	\$1249	\$1319	670	10	2.9 ¹	HH	2
Micropolis 800	M2108	1199	1219	698	10	5.0 ²	HH	5
Toshiba 877	MK-438FB	1099	1169	830	12.5	3.0 ¹	HH	2
Quantum 1050	PRO1050	1419	1489	1000	10	2.9 ¹	HH	2
HP 1050	97558	1649	1749	987	13.5	2.8 ¹	FH	5
Fujitsu 1.2	M2266	1249	1349	1079	14.5	3.0 ¹	FH	5
HP 1.2	C2247	1589	1659	1000	10.5	5.3 ¹	HH	5
Micropolis 1.2	M2112	1249	1319	1005	10	5.0 ²	HH	5
Quantum 1.2	PRO1225	1599	1669	1200	10	2.9 ¹	HH	2
Toshiba 1.2	MK-538FB	1399	1469	1200	12.5	4.0 ¹	HH	3
Maxtor 1.2	MXT-1240	1399	1469	1240	9	4.5 ²	HH	3
Conner 1.3	CP-31370	2059	2129	1030	10.5	6.0 ¹	HH	1
1.5 - 3.6 GB								
Fujitsu 2.0	M2652	\$2299	\$2399	1752	11	4.8 ²	FH	5
Seagate 2.1	ST42100N	1999	2099	1900	12.9	3.9 ²	FH	5
Fujitsu 2.4	M2654	2549	2649	2000	11	4.8 ²	FH	5
Micropolis 2.4	M1924	2599	2699	2100	10	4.8 ²	FH	5
Seagate 2.4	ST42400N	2879	2979	2050	11	4.5 ²	FH	5
HP 2.4	C3010	2899	2999	2000	11.5	5.3 ²	FH	5
Seagate 3.4	ST43400N	3999	4099	2750	11	6.0 ²	FH	5
Micropolis 3.6	M1936	3299	3399	3022	10	6.0 ²	FH	5

* Transfer rate (or throughput) depends on your Mac CPU and system configuration. For more information, ask your Hardware That Fits sales partner. **Form Factor Low Profile (LP)=3.5 Half Height (HH)=3.5 Full Height (FH)=5.25

¹ SCSI-2 ² SCSI-2 Fast These drives are most efficient when used with a Macintosh Quadra 800, 950 or a RealTech SCSI-2 card.

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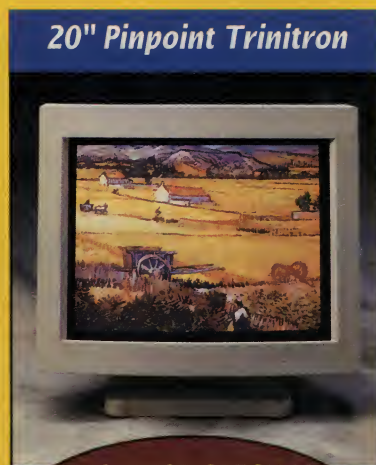
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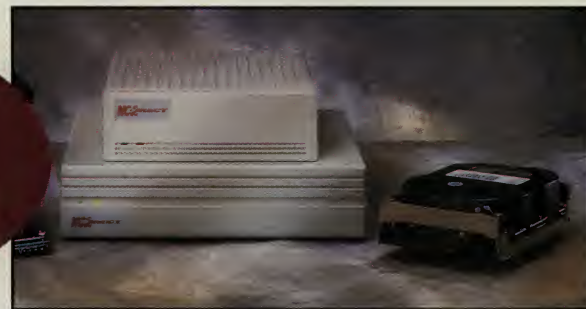
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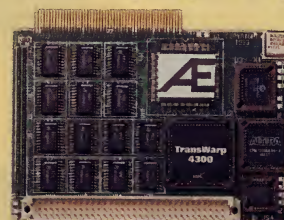
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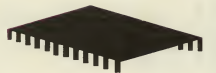
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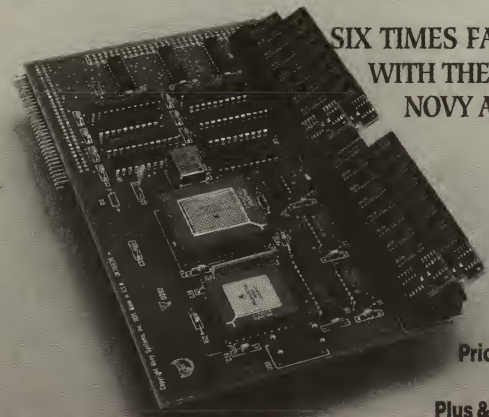
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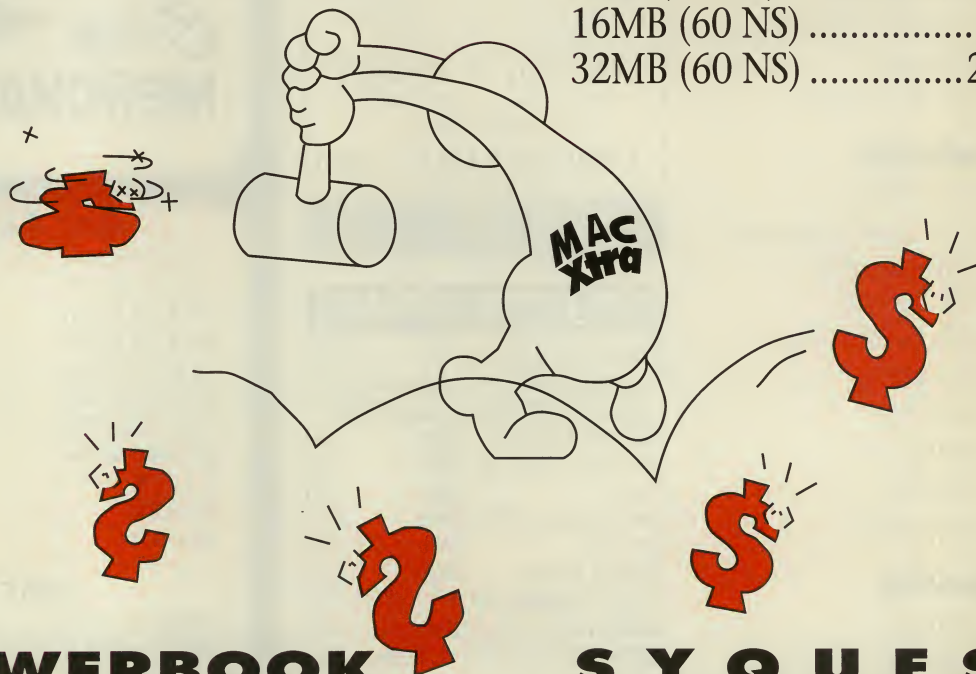
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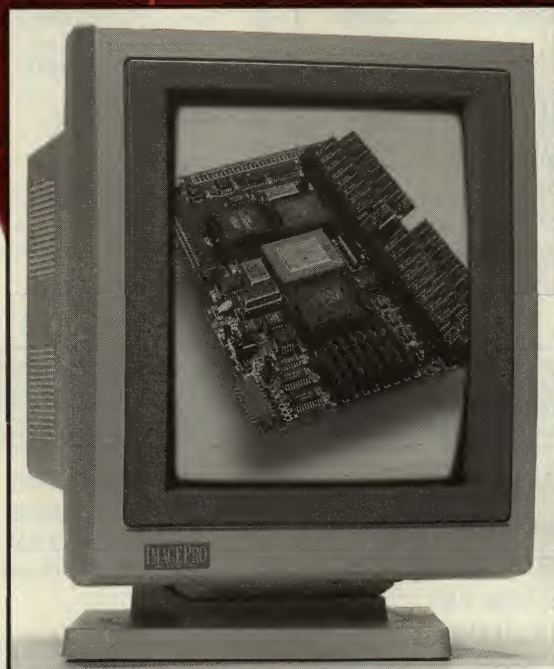
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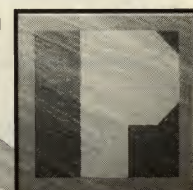
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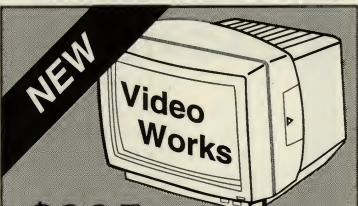
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520MB M2624FA
1.1GB M2694SA
1.2GB M2266SA
2.0GB M2652SA
2.4GB M2654SA



• Five year warranty

QUANTUM

42MB ELS42
85MB ELS85
127MB ELS127
170MB ELS170
240MB LPS240
525MB LPS525
700MB PRO700
1.0GB PRO1050
1.2GB PRO1225
80MB Go•Drive
120MB Go•Drive

• ELS, LPS, PRO drives have two year warranty
• GO•drives have one year warranty

SYQUEST

44MB IMS 44MB External
88MB IMS 88MB External
88MB IMS 88c External
44MB SyQuest SQ400 Cartridge
88MB SyQuest SQ800 Cartridge

• Drives ship with one cartridge
• Drives have two year warranty

MAXTOR

120MB 7120
207MB 7213
330MB LXT-340
540MB MXT540SL
1.2GB MXT1240S
1.2GB PO-12S
1.7GB P1-17S

• 3.5" drives have one year warranty
• 5.25" drives have two year warranty

SEAGATE

1.2GB ST11200N
2.1GB ST42100N
1.6GB ST41600N
2.4GB ST42400N
3.4GB ST43400N

• Drives have one year warranty

MICROPOLIS

660MB 1624
1.0GB 2112
2.0GB 1924

• Drives have five year warranty

All IMS drives now shipping with FWB Hard Disk Toolkit™

Form Factor	(ms)	Int.	Ext.
3.5 HH	9	\$799	\$859
3.5 HH	8.5	\$1529	\$1589
5.25 FH	14.5	\$1245	\$1345
5.25 FH	14.5	\$2199	\$2299
5.25 FH	14.5	\$2399	\$2499

Form Factor	(ms)	Int.	Ext.
3.5 1"	19	\$169	\$229
3.5 1"	17	\$195	\$249
3.5 1"	17	\$229	\$285
3.5 1"	17	\$259	\$309
3.5 1"	10	\$339	\$395
3.5 1"	10	\$869	\$929
3.5 HH	10	\$1129	\$1189
3.5 HH	10	\$1249	\$1309
3.5 HH	10	\$1399	\$1459
2.5	17	\$289	\$379
2.5	17	\$329	\$419

Form Factor	(ms)	Int.	Ext.
Single		\$389	\$729
Dual		\$489	\$899
NEW!		\$589	\$64
		\$99	

SIGMA DESIGNS MONITORS

ColorMax 15
for PowerBook 160, 180 and
Duo computers \$739

Power Portrait
for Mac Plus, Classic, Classic II,
SE, SE/30 & PowerBook
computers \$619

• Call for information about other Sigma Designs products.



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Full Height \$145
Half Height \$85
2.5" Mini Housing \$99

• Closed or Open Front Bezel.
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• 110/220 VAC auto switching power supply.
• Full Height cabinet will hold two 3.5" or 5.25" HH drives.

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PowerBook Cable
HDI-30 ~ 50 Centronics \$39
Power Pad (keypad) \$89
PowerBook Memory (Call)
PowerBook Battery
for 140/145/160/170/180 \$65
Battery Charger \$99

**TOSHIBA 205MB
HARD DRIVE**
Internal for the
PowerBook
2.5" **\$579**

It's big, it's fast & it's in stock now!

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PowerCache - 33, 40, & 50 MHz Turbocharged Accelerator

"Super performance for ALL software applications." Accelerates everything your computer does. From QuickDraw screen refreshes to spell-checking your documents, the PowerCache turbocharges your computer, transparently."

Classic, Color Classic, SE, SE/30, LC, LC II, II, IIx, IIcx, IIci, IIsi, IIvi, IIvx, Performa 400
and 600 - adapter required for all but the IIci, IIvi, IIvx, and Performa 600.

PowerCache	w/FPU
33MHz	\$375 \$459
40MHz	\$545 \$635
50MHz	\$715 \$845
PowerCache Adapter	\$41

FastCache	
Turbo (128k)	\$169
Quadra 700/900	\$249
Quadra 700/800/900/950	\$375
IIsi (64k)	\$279 \$349
IIci (64k)	\$199

• PowerCache & FastCache have 36 month limited warranty.

Disk Runner - NEW!!!
"Increase the speed of your drive today!" \$599

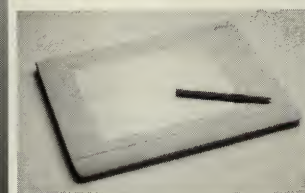
Turbo 040 Accelerators	
Turbo 040 25MHz	\$1079
Turbo 040 33MHz	\$1329

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ArtZ tablet w/pressure pen. Works with all Macintosh software applications and is supported by all major pressure-sensitive software applications.

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600MB	5.25"	\$99
128MB	3.5"	\$40

APPLIED ENGINEERING

Accelerators

for Mac LC, LCIII, Performa 400, & Color Classic

TransWarp	4300	40MHz	\$369	w/FPU	\$505
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for Mac SE & SE/30

TransWarp	1300	25MHz	\$185
TransWarp	1300	40MHz	\$249

for Mac Classic

TransWarp	2300	25MHz	\$185
TransWarp	2300	40MHz	\$249

International Mac Specialists

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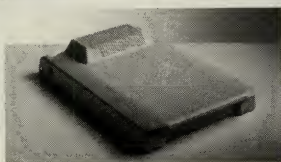
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UC840 \$1248
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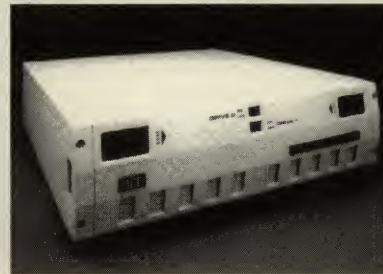
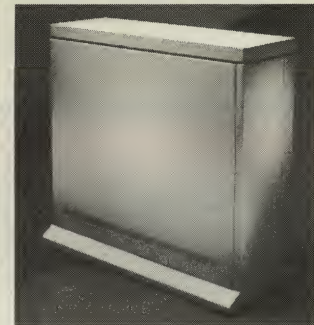
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2 DRIVES SOLUTION WITH CANISTERS AND SCSI CABLESTOWER SUBSYSTEMS
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HARD DRIVES

ALL DRIVES ARE LISTED WITH FORMATTED CAPACITIES

FUJITSU

5 YEAR WARRANTY

MB	TYPE	SIZE	SEEK	INT.	EXT.
128	M2511A	3.5	38	\$ 936	\$1036
425	M2623FA	3.5	12	\$ 714	\$814
520	M2624FA	3.5	12	\$ 738	\$833
1079	M2266S	FH	14	\$1189	\$1309
1080	M2694FA	3.5	10	\$1098	\$1198
1750	M2652S	FH	11	\$2033	\$2163
2061	M2654S	FH	11	\$2100	\$2220

DEC

5 YEAR WARRANTY

MB	TYPE	SIZE	SEEK	INT.	EXT.
850	DSP3085S	3.5	9.5	\$1192	\$1287
1050	DSP3105S	3.5	9.5	\$1158	\$1253
1660	DSP3160S	3.5	10	\$1752	\$1847
2000	DSP5200S	FH	12.5	\$1904	\$2024
3500	DSP5350S	FH	11.5	\$3246	\$3366

MICROPOLIS

5 YEAR WARRANTY

MB	TYPE	SIZE	SEEK	INT.	EXT.
560	2105	3.5	10	\$889	\$984
698	2108	3.5	10	\$1093	\$1193
667	1624	HH	15	\$1028	\$1128
1050	2112	3.5	10	\$1094	\$1194
1340	1528	FH	14.5	\$1309	\$1439
1380	1908	FH	11.5	\$1812	\$1932
2100	1924	FH	11.5	SCALL	SCALL
3050	1936	FH	11	\$2993	\$3123

SEAGATE

1 YEAR WARRANTY * 5 YEAR WARRANTY

MB	TYPE	SIZE	SEEK	INT.	EXT.
245	ST3283N	1"	12	\$ 340	\$ 440
456	ST3550N	1"	12	\$ 815	\$ 915
540	ST3600N	1"	10.5	\$ 855	\$ 955
665	ST4767N	FH	12	\$1025	\$1125
*860	ST1980N	3.5	9.9	\$977	\$1077
1037	ST41200N	FH	16	\$1047	\$1147
*1037	ST11200N	3.5	10.5	\$1020	\$1115
1420	ST41650N	FH	15	\$1228	\$1348
1420	ST41600N	FH	11.5	\$1695	\$1815
*1900	ST42100N	FH	12.9	\$1580	\$1700
*2100	ST42400N	FH	11	\$2217	\$2337
*2900	ST43400N	FH	11	\$2808	\$2928

SPECIALS

TYPE	MB	SIZE	SEEK	INT.	EXT.
Fujitsu	520	3.5"	12	\$ 738	\$ 833
Seagate	1,04GB	3.5"	10	\$1020	\$1115
Fujitsu "Optical"	128	3.5"	30	\$1020	\$1130
Seagate	1900	FH	12	\$1580	\$1700

CD-ROM CHINON

CDS-535 INTERNAL KIT 650MB 280MS \$ 400

"PHOTO CD COMPATIBLE"

MAXTOR

2 YEAR WARRANTY

MB	TYPE	SIZE	SEEK	INT.	EXT.
213	7213SY	1	15	\$ 296	\$ 391
340	LXT340SY	3.5	13	\$ 557	\$ 652
540	LXT540SY	3.5	8.5	\$ 899	\$994
1240	1240S	3.5	8.5	\$1322	\$1417
1059	PD-12S	FH	13	\$1063	\$1193
1345	P1-17S	FH	13	\$1265	\$1395

QUANTUM

2 YEAR WARRANTY

MB	TYPE	SIZE	SEEK	INT.	EXT.
240	LPS240S	1"	16	\$ 319	\$ 419
525	LPS525S	1"	10	\$ 831	\$ 926
700	PD700S	1"	10	\$1092	\$1192
1050	PD1050S	3.5	10	\$1190	\$1290
1200	PD122S	3.5	10	\$1237	\$1337

CONNER

1 YEAR WARRANTY

MB	TYPE	SIZE	SEEK	INT.	EXT.
170	30170	1"	17	\$ 260	\$ 360
212	30200	1"	12	\$ 333	\$ 430
545	30540	1"	10	\$ 872	\$ 972

- Immediate Delivery: we have a 92% rate of shipping within 24 hours. Overnight delivery available.
- Product knowledge: our sales people and technicians will provide the most cost effective drive or subsystem solution.
- Technical assistance: toll FREE service Monday thru Friday, 9am to 6pm EST.

- Payment: VISA, M/C, Corporate, Gov't and Education Purchase Orders welcome. No surcharges for C.O.D. or Credit Cards. We check for stolen credit cards.
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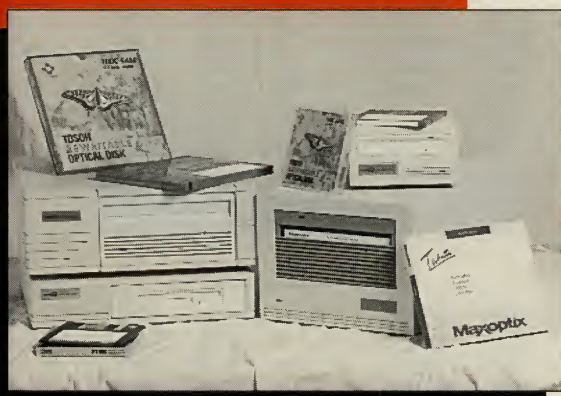
RMA # must be acquired first. Shipping is non-refundable. Returns may be subject to restocking fee.



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MegaHaus external enclosures feature external ID select, external termination, 2 SCSI connectors, Metal case. SpotOn software features disk caching, password protection, and a wide variety of drive icons.



- Our 6th year selling Quality Drives at Incredible prices
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- Advanced Replacement Available
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All of Your Storage Needs Under One Roof!

MegaHaus offers unbeatable value! We ship 99% of our orders within 24 hours.

Hard Drives

Includes: SpotOn Formatting Software, Cables

Capacity	Speed	RPM	Brand	Warranty	Internal	External
84Meg	17ms	3822	Conner	2 Years	\$179	\$249
85Meg	17ms	3600	Quantum	2 Years	\$179	\$249
127Meg	17ms	3600	Quantum	2 Years	\$219	\$289
130Meg	17ms	3600	Maxtor	2 Years	\$209	\$269
170Meg	17ms	3600	Conner	2 Years	\$239	\$299
213Meg	15ms	3600	Maxtor	2 Years	\$299	\$369
213Meg	12ms	4000	Toshiba	1 Year	\$559 (2 1/2" for Powerbook)	
240Meg	16ms	4300	Quantum	2 Years	\$317	\$385
340Meg	15ms	3600	Maxtor	1 Year	\$539	\$599
520Meg	12ms	4400	Fujitsu	5 Years	\$769	\$829
540Meg	8.5ms	6300	Maxtor	2 Years	\$889	\$959
877Meg	12ms	3600	Toshiba	5 Years	\$969	\$1039
1050Meg	10ms	5400	Micropolis	5 Years	\$1199	\$1269
1080Meg	9.5ms	5400	Fujitsu	5 Years	Sale! \$1099	\$1169
1100Meg	10.5ms	5400	HPackard	5 Years	Sale! \$1199	\$1269
1230Meg	12ms	3600	Toshiba	5 Years	\$1139	\$1209
1200Meg	8.5ms	6300	Maxtor	3 Years	\$1299	\$1369
2060Meg	12ms	5400	Fujitsu	5 Years	\$2149	\$2239
3020Meg	11ms	5400	Micropolis	5 Years	\$3199	\$3299

We sell the complete lines of all brands shown. We have Disk Array Systems for incredible performance and fault tolerance.

Syquest Drives

Includes: SpotOn Formatting Software, 1 Cartridge, Cables

Capacity	Model	Speed	Internal	External
44Meg	SQ555	20ms	\$349	\$379
88Meg	SQ5110	20ms	\$419	\$459
88Meg	SQ5110C	20ms	\$499	\$549
Media	44Meg 44Meg 5 pack	88Meg 88Meg 5 pack	105Meg 105Meg 5 pack	
	\$64 \$315	\$96 Sale! \$449	\$98 \$449	

CD-ROM Drives

Includes: Trantor Driver Software with Music play software, cables, 1 year warranty. All CD Drives are Kodak multisession Photo CD Compatible.

Brand	Speed	Transfer	Type	Internal	External
Texel	265ms	300KB/sec	Single Disk	\$449	\$509
Toshiba	200ms	330KB/sec	Single Disk	\$499	\$569
Toshiba	200ms	330KB/sec	Battery Powered	N/A	\$729
Pioneer*	380ms	150KB/sec	6 Disk Changer	N/A	\$899
Pioneer	270ms	612KB/sec	6 Disk Changer	N/A	\$1289
CD's (sold only with CD Drive)	Encyclopedia \$55	World Atlas \$22	Us History \$35	Family Doctor \$72	GuinnessRecords \$45
					Speakers \$90
					Caddies \$9

Tape Drives

Includes: Retrospect Backup Software Ver. 2.0, 1 Tape, Cables, and a 1 year warranty

Capacity	Type	Brand	Speed	Internal	External
250Meg	QIC 150	Archive	7MB/min	\$459	\$499
2Gig	DAT	Archive	11MB/min	\$1029	\$1069
2Gig	DAT	Hewlett Packard	12MB/min	\$1199	\$1259
4-8Gig	DAT	Archive	88MB/min	\$1299	\$1339
4-8Gig	DAT	HewlettPackard	42MB/min	Sale! \$1329	\$1379

We have Hewlett Packard and Archive DAT Autoloaders for large backup.

Tapes DC6250 \$29	6250 5 pack \$135	90 Meter DAT \$17	DAT 5 pack \$75	DAT Cleaning Tape \$19
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Optical Drives

Includes: SpotOn Formatting Software, 1 Media, and Cables

Capacity	Speed	Brand	Feature	Internal	External
20Meg	65ms	Insite	Floptical	\$319	\$359
128Meg	30ms	Fujitsu	Fastest 128Meg	\$949	\$989
650Meg	53ms	Pioneer	MultiFunction	\$2059	\$2099
650Meg	27ms	Hewlett Packard	MultiFunction	Super Sale! \$2229	
1Gig	35ms	Maxoptix Tahiti IIM	MultiFunction	N/A	\$2999
Media	20Meg \$23	20Meg 5 pack \$95	128Meg \$39	128Meg 5 pack \$189	650Meg \$96
					650Meg 5 pack \$469
					1Gig \$189
					1 Gig 5 pack \$929

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Model E-1 1,599

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Compatible! Premium Quality at Low Cost - 67 ms.
access. While Supplies Last - Limited Quantity!

1.0 Gig. Maxoptix Tahiti-II 2,999

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600 Meg. Pioneer Multifunction 2,199

Rewritable and WORM in one unit.

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Premium quality, best selling WORM

128 Meg. Ricoh ISO 999

128 Meg. Epson ISO 1,049

128 Meg. Diabolo - Panasonic 899

Mac, IBM, Sony Compatible! Fast, too!

All rewritable optical come with media,
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Media: 1 to 4 5+

600M 5-1/4" Optical Plastic . 99 95

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1.0G Glass, Maxoptix 239 229

600M Multifunction 179 169

600M WORM, Pioneer 109 99

SyQuest Removable Drives

Mobile 44 - SQ555 378
Mobile 88 - SQ5110 479
Mobile 88+ - SQ5110C 555
Mobile 105 - SQ 699

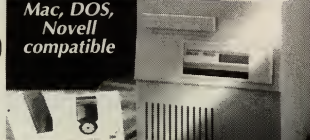
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SqQuest 44 Meg. 63 61

SqQuest 88 Meg. 97 94

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Movies *Free* On Every 44 Cartridge!!



Ricoh 6 Gigabyte Optical JukeBox
\$6,999

Each 6 Gig. JukeBox contains 10 Optical Cartridges
and a Ricoh HyperSpace Erasable Optical Drive. The
IDE JukeBox (shown) is designed for networks or large
on-line storage needs. It's Macintosh, MS DOS and
Novell Compatible. The JukeBox can address all car-
tridges in a matter of seconds, automatically.

The JukeBox comes complete and includes:

- Ricoh HyperSpace Optical Drive
- Formatting and Library Software
- 10 Optical Cartridges
- Cables
- Terminator (with Term. Power LED)

DOS Solution Includes:

- All the above plus a Host Adapter

6 Gig. Ricoh/IDE JukeBox 6,999

Verbatim Media: 1 to 4 5+

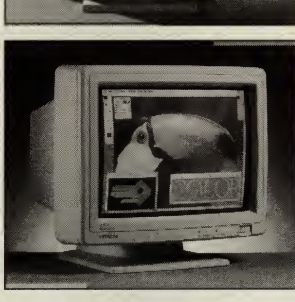
128 Meg. 3-1/2" Optical 44 39

128 Meg. 3-1/2" 5-Pk 195 175

600 Meg. 5-1/4" Plastic 109 105

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* Package includes a new 20" Hitachi Mac compatible Trinitron color monitor, video board, and cable. 72 dpi for WYSIWYG.

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Package * 799

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Asanté FriendlyNet Adapters 69

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Asanté 10BaseT Hub/12 479

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With 35 watt power supply, prw cable, fan, SCSI ID.

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Includes SCSI cable,
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Monitor Only 1,599

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16 Million Color . 1,649

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256 Color Monitor!**
\$359

Monitor Only 359

8 - Bit Package
256 Color 499

Compatible with Macintosh On-Board Video LC, LCII, si, ci and Quadra 900/950.

**20 Inch Sampo
256 Grayscale
Monitor!**
\$599

Monitor Only 599

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Mac II, x, fx, cx, ci
Package * 799

Mac LC, LCII, SE/30
Package * 999

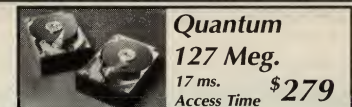
Ikegami Monitor Only 799

Mac II, x, fx, cx, ci
Package * 999

Mac LC, LCII, SE/30
Package * 1,199

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127 Meg.
17 ms.
Access Time**
\$279

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1.0 Gig. - ST11200N, 14 ms. ... 1,149 1,209

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1.0 Gig. - ST41200N, 15 ms. ... 1,149 1,249

1.4 Gig. - ST41651N, 15 ms. ... 1,349 1,449

1.9 Gig. - ST42100N, 12.9 ms. 1,725 1,825

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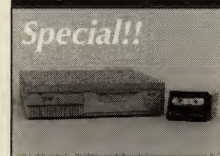
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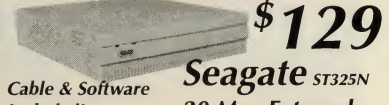
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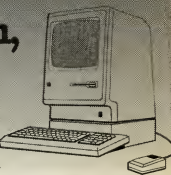


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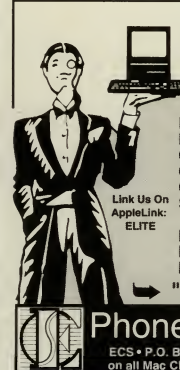
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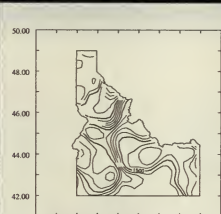


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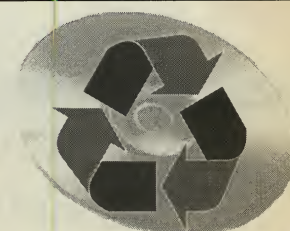
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Assist

From Page 1

called a binder, which fills the PowerBook screen and is not resizable. It uses the database engine from ACI US Inc.'s 4th Dimension Version 2.2.3, which is integrated into the program and included in the cost, to store data.

What differentiates Assist from conventional PIMs is a built-in intelligent assistant that simplifies data entry and retrieval and helps users create links between objects.

When creating a new entry in the People module, for example, users can enter both first and last name in the first-name field; Assist parses the entry, placing the last name in the last name field and leaving the first name where it is. After entering a phone number, users can add a fax number simply by entering the differing digits; the program will automatically enter the area code and exchange.

When the user enters the company name, if that company doesn't exist in the binder,

Assist asks if it should create a profile for that company. If more than one company matches the entry, a list pops up allowing the user to select which company that person works for.

Likewise, a user entering an event — for instance "Meet George for Lunch at Prima Dona's" — in the program's Planner, or calendar module, can link the event to profiles of George and Prima Dona's in other modules. If that seems like too much trouble, the user can just click the Assist button, which will

automatically create those links, select the appropriate event type (an entry containing the word "lunch" will be classified as an event of the type "food," for example) and enter the corresponding icon into the planner.

To Do items, with start and complete-by dates, type, priority, and standard or custom tags, can be added in the planner window or in the To Dos module. In the Projects module users can gather To Dos, events and people related to a particular project under one heading. They can set start and due dates, monitor the project's progress and store extensive notes.

In the Items module users can add text and PICTs to their binder and link these with any other object. For instance, the abstract for a project could be imported and attached to that project's profile; the map to Prima Dona's could be linked to the restaurant's profile.

Assist gives users several options for getting around, such as list views that provide overviews of data in a module and access to linked information in other modules. A Find command can locate any object in a binder. A Smart Index feature can display a list of all objects in the binder or only those that satisfy user-specified filters.

Rae Technology Inc. is at 19672 Stevens Creek Blvd., Cupertino, Calif. 95014. Phone (408) 725-2850; fax (408) 725-2855. □



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Rae architecture goes Solo

Underlying Rae Technology Inc.'s Assist is a software architecture initiated at Apple to make development of business applications for pen-based and mobile computers faster and easier — and demonstrate that such applications can deliver large productivity enhancements for corporate customers.

The architecture, according to its creator, Apple veteran and Rae CEO Samir Arora, takes the form of a still-evolving set of application programming interfaces (APIs), accessed through an extensible, high-level development language code-named Solo, which Arora compared to Apple's MacApp.

Instead of providing its own database engine, the Rae architecture is designed to work with information stored in a variety of repositories, including applications such as ACI US Inc.'s 4th Dimension (used as the foundation for Assist) or other standard Mac database packages; host systems, such as SQL databases; and communications-based services, such as electronic-mail systems. By providing object-oriented data-management and application-generation routines independent of the data sources, the architecture provides a flexibility that traditional database applications lack, according to Rae.

The company spun off from Apple last September and is now financially independent, although it remains based on Apple's campus, and its board of directors consists of high-ranking Apple executives. Since going on its own, Rae has used its APIs not only to develop Assist but also create custom applications for Chevron Corp. and several major pharmaceutical companies.

Rae will continue to develop custom and commercial products based on the architecture, Arora said, but it also intends to make its tools available for licensing by other developers. — By Henry Norris

PCI

From Page 1

Comdex/Spring '93 show. The first RISC-based Macs, expected early next year, will use the NuBus, but "Apple anticipates that later PowerPC-based systems will include PCI expansion," the company said in a statement.

Apple's current plans reportedly call for two Macs based on the PowerPC 601 to be released in the first quarter of next year. One, sources said, will be a Centris 610-like box with one NuBus slot; the other will be a Centris 650-style system with three NuBus slots. PCI is expected to replace the NuBus when a second round of RISC Macs, also based on the 601 but offering better performance, appears in summer 1994.

PCI was originally designed to speed up the display of graphics on Intel-based personal computers, but the standard itself is processor-independent and suitable for other hardware add-ons that require high bandwidth, including network, video and SCSI adapters.

Like the NuBus, PCI provides a 32-bit data path between a central processor and expansion cards. But while the NuBus runs at 10 MHz and has a theoretical maximum throughput of 40 Mbytes per second, PCI is clocked at 33 MHz and can transfer up to 132 Mbytes of data per second in burst mode. In addition, according to Intel, PCI is designed to be extensible to 64-bit operations in the future.

While many PC vendors are currently using an earlier "local bus" standard called VL-Bus to accelerate their displays, PCI has already garnered endorsements from more than 150 companies, including IBM Corp., Compaq Computer Inc., Dell Computer Corp., Digital Equipment Corp. (which has said it will make PCI standard on its Alpha RISC-based systems) and Hewlett-Packard Co.

Intel has three patents pending on the technology required to build PCI chip sets, boards and peripherals. In a move to win support for the new standard, Intel last December agreed to license its patents free of royalties.

Apple's announcement came at a meeting here of the PCI Special Interest Group, an unincorporated association set up to promote and enhance the specification. The company will immediately become a nonvoting member of the group, and "It is Apple's goal to become a voting member during the next balloting period," according to the statement.

"By adopting a standard we think we're ensuring lower costs and more options for both users and developers," said Eric Harslem, Apple vice president of desktop products. "We won't have to develop the chip sets ourselves, companies that make Mac cards will be able to take their products to other platforms, and it will be easier for us to evangelize PC card companies to support the Mac." With appropriate software drivers, some cards might even be interchangeable across PCI platforms, he said.

Before adopting PCI, Apple reportedly gave serious consideration to a bus design of its own called PSI+, and the company's Enterprise Systems Division is still weighing possible uses for PSI+, sources said.

"PCI isn't as good as PSI+," said one source familiar with both specifications, "but it's much better than NuBus, and it can be extended in the future. Besides, it's worth sacrificing a bit of performance to have an industry standard."

"Is it good enough for the next 10 years? Probably not," he said. "But is it good enough for the next five? Very definitely." □

Computer makers protest Clipper

By Carolyn Said

Washington — A group of leading computer makers last week protested the Clinton administration's proposed standard for data security.

The Computer and Business Equipment Manufacturers Association (CBEMA), whose members include Apple, IBM Corp., AT&T

Co. and Hewlett-Packard Co., said the plan, based on the Clipper encryption chip, would weaken privacy protection. CBEMA claimed this would put U.S. computer companies at a disadvantage abroad because international customers demand strong security technology.

Clipper, which can encrypt voice and data

communications at up to 16 Mbps, would permit law-enforcement agencies with a court order to unscramble conversations and documents. Theoretically, the agencies would need a court order to gain access, but CBEMA said the U.S. National Security Agency, which helped develop Clipper, would be able to eavesdrop on international phone and computer traffic without a court order.

Civil-liberties groups have also protested Clipper since it was announced last month. □

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LaserWriters

From Page 1

ny's PhotoGrade gray-scale software may not be included, sources said.

The Select 360 reportedly will feature new nonvolatile memory for storing fonts and new printer software.

It will automatically power down after user-specified periods of inactivity to save energy.

The new printer will include LocalTalk, Centronics parallel and RS-232 serial ports. Apple reportedly will not offer an Ethernet option for the device.

The Select 360 reportedly is built around an NCR RISC chip. It will ship with 7 Mbytes of RAM, expandable to 16 Mbytes.

It will come standard with a 250-sheet paper tray that handles all sizes but legal, and users will be able to purchase a variety of other paper-handling options, including a 500-sheet letter- or A4-size feeder, 250-sheet universal- and legal-size cassettes, and a 30-sheet envelope feeder.

► **The LaserWriter Pro 800** reportedly will be a version of Dataproducts Corp.'s LZR 1560, a large-format Adobe PostScript Level 2 laser printer from Dataproducts of Woodland Hills, Calif. The printer can output 15 letter-size pages or 8 tabloid-size pages per minute at a hardware resolution of 400 dpi, which can be interpolated to 800 by 400 dpi.

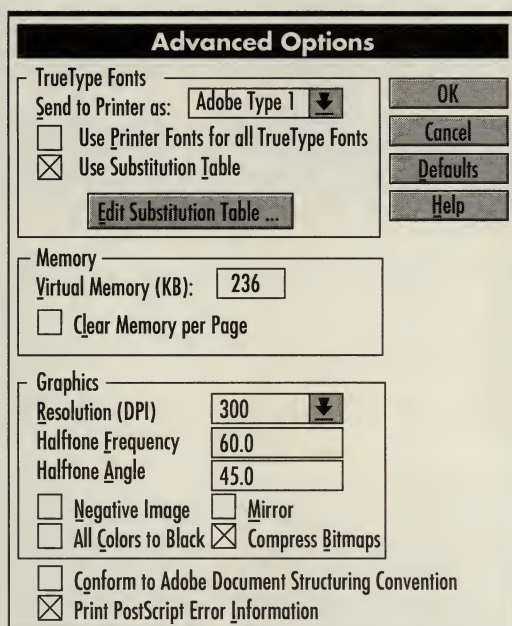
The printer switches between Level 2 and a PCL 4 emulation, and it will ship with 35 Type 1 and 64 TrueType fonts. It includes LocalTalk, RS-232 serial and Centronics parallel interfaces as well as an external SCSI port for a hard disk. Cards for Ethernet and SNMP (Simple Network Management Protocol) compatibility will be optional.

Like the Select 360, the Pro 800 is based on a Fuji Xerox engine. It runs on a 16-MHz Weitek 8200 RISC chip and will ship standard with 8 Mbytes of RAM, which can be expanded to 16 Mbytes. It requires 16 Mbytes of RAM to output interpolated images at tabloid size, sources said.

The Pro 800 will come standard with 250-sheet letter- and tabloid-size paper cassettes.

Dataproducts offers the LZR 1560, which it introduced in January 1992, with one, two or three 250-sheet paper trays for \$3,395, \$3,595 and \$3,795, respectively.

► **The LaserWriter Pro 810** is a 20-ppm version of the Pro 800 that will ship standard with Ethernet and SNMP compatibility. □



A Windows version of Apple's LaserWriter Utility software, to ship with the company's forthcoming laser printers, will provide PC users with greater control of output.

Informix

From Page 1

The company said it will tune up Version 5 of two of its server products — Informix-OnLine, a multimedia-capable database engine, and Informix-SE, which is intended for small to medium-size sites where low maintenance is mandatory — to run under A/UX 3.0.1.

Informix's suite of development tools will also be ported to A/UX and will ship in the fall along with the server engines.

One user of the Workgroup Server 95 and an Informix SQL database back end said that while the upgraded support is welcome, it may also be too late.

"We've been thinking of moving over to [Oracle Corp.'s] Oracle7 simply because it will run on A/UX [3.0]," said Phil Kearney, network engineer at Falcon Microsystems Inc. of Landover, Md. "I've definitely felt frustrated with Informix, thinking 'Why am I messing around with this stuff when Oracle's saying [it will] give me everything I need?'"

A version of Oracle7 for the A/UX-based Apple Workgroup Server 95, announced in April, is scheduled to ship next month.

Meanwhile, Apple said last week it is also in negotiation with Sybase Inc. to port Sybase server software to A/UX.

The Informix lineup for A/UX 3.0.1 will include:

► **OnLine.** In conjunction with Star, Informix's distributed database software, OnLine is Oracle7's direct competition, Informix said. Prices for the set will start at about \$4,000.

► **Informix-SE.** Prices for the A/UX 3.0.1 version will start at \$1,320.

► **4GL tools.** Informix-4GL, a fourth-generation programming language and set of tools, will be available for A/UX, as will the Informix-SQL tool suite; C-ISAM, a C function library; and ESQL/C, a tool to help developers embed SQL commands in C code.

Prices will be comparable to similar Informix Unix products, according to Informix.

The company said the A/UX version of Informix-SE is a perfect match for Mac sites using the Workgroup Server 95. Falcon's Kearney said Informix's competitive pricing may also weigh in its favor at sites thinking of making a change.

"Informix's products are cost-effective — they always have been," Kearney said. "I know I want to put departmental databases on Workgroup Servers, and now I have two alternatives. It will be a tough decision, however."

Informix earlier this year announced that it plans to release a new version of its Wingz spreadsheet and HyperScript front-end development tools for the Mac operating system this fall. □

LC 520

From Page 1

stereo speakers that can enhance both CD-ROM and the Mac's sound output.

LC 520 prices will start at less than \$2,000, sources said. Apple will reportedly offer a configuration of the new model with 5 Mbytes of RAM and an 80-Mbyte hard disk, and another with a 160-Mbyte hard disk. The internal RAM can be upgraded to 36 Mbytes. The design also provides a single 120-pin processor direct slot, sources said.

Like the Color Classic, the back of the LC 520 has a door that permits easy access to the logic board. Apple is expected to offer logic-board upgrades for the LC 520, including a possible PowerPC upgrade, sources said.

The new Mac also implements an energy-saving technology that dims its monitor after a user-specified idle time, cutting power consumption in half. Users will be able to turn the unit on and power it down from the keyboard.

While the LC 520 doesn't approach the computing power of many of Apple's other offerings, what speed it does offer — combined with a CD-ROM and a low price — may appeal to many business buyers.

"We would hesitate to buy a Mac with one slot due to our use of Ethernet but, especially with a CD-ROM player and at that price, it would definitely be worth looking at," said Bruce Whetstone, director of corporate information technologies at Amgen in Thousand Oaks, Calif.

Apple will reportedly monitor market reaction and may offer the LC 520 to mainstream buyers at a later time.

But sources said Apple may decide to keep the new model out of the mainstream indefinitely, in part because it is beginning to pay attention to feedback from customers that it offers too many models that are too close to each other in functionality. □

Pricing

From Page 1

Bill Lempeis, president of Lempeis Research, a Pleasanton, Calif.-based company that tracks the notebook market. "I don't see an end in sight."

Lempeis cautioned that the PowerBook 180c could face stiff price competition from DOS manufacturers, who routinely offer color portables with active-matrix screens for \$3,000 to \$3,500.

Gary Droutman, president of Byte Shop, a dealer based in Merrick, N.Y., said the new PowerBooks will "only confuse users."

"Apple comes out with new PowerBooks every minute — the old PowerBooks aren't selling, and I'm not real excited about the new ones," Droutman said, echoing the sentiments of other resellers who report slower PowerBook sales, especially of PowerBook Duo models.

One problem dealers aren't likely to have with the 180c, at least after an initial ramp-up period, are shortages of the kind that limited sales of the PowerBook 170 and 180.

The new notebook's screen will reportedly be supplied by Sharp Electronics Corp., which sources said is prepared to produce it in large volumes; Hosiden Corp., the manufacturer of Apple's previous active-matrix screens, lacked the capacity to meet Apple's demand. □

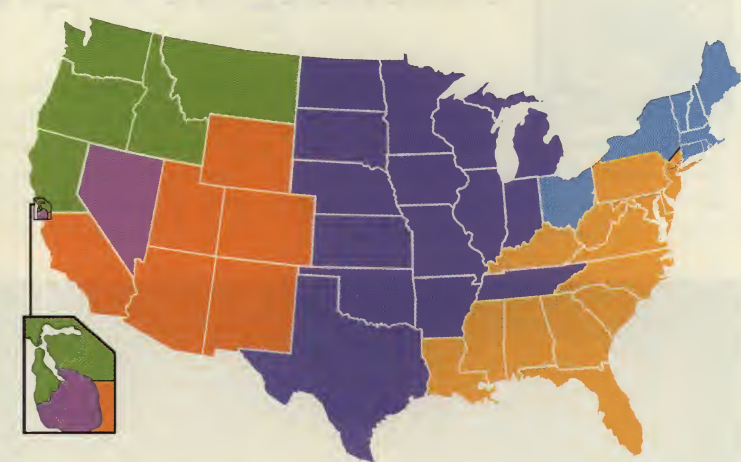
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June 14	LC II add-ons	June 3	June 1
June 21	GA Spec. Rpt. Utilities	June 10	June 8
June 28	Cross-platform tools	June 17	June 15
July 5	Database	June 24	June 22
July 12	Gateways Presentations	July 1	June 29
July 19	Vertical Markets Contact software	July 8	July 6
July 26	Multimedia Security	July 15	July 13

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It looks as though the question of the relative importance of style vs. substance has finally been decided, and style won. First, the president traveled to California to make life easier for the remaining comedy writers in the

nation (the better ones are apparently now in the employ of the federal government) with the Air Force One incident in Los Angeles. Then, as if to underline a point, Jose Canseco deftly demonstrated that he, too, could use his head to good comedic advantage.

In Utah the debate about style and substance is also over, and at least as far as WordPerfect Mac 3.0 is concerned, it's pretty much a tie. The Knife reports that the 3.0 feature set is finally frozen and the project is far enough along that the company is now confident that

it can proceed with its plans to demonstrate the latest incarnation of word processing perfection at the August Macworld Expo.

In case you were wondering, Version 3.0 won't be the shared-engine, cross-platform version. Nevertheless, sources are impressed with steps taken in pursuit of the laudable goal of maximum power with minimum sweat. Among the changes to the interface you'll find a fat tool bar bulging with icons, a built-in equation editor, and improvements to the document ruler that should make life a lot easier for those whose daily life consists of creating and editing complex documents.

If you're familiar with Apple's AOCCE demos, you'll be right at home with 3.0's AOCCE mailer. And if WordPerfect Corp. meets its self-imposed target of shipping this fall, it will have beaten Microsoft to the AOCCE punch.

For those inclined to a structured view of life, Version 3.0 will include a very sophisticated table editor, possibly as sophisticated as that in the current WordPerfect 6.0 for DOS (which actually relies on code "borrowed" from the late PlanPerfect spreadsheet product). So, if you've ever had an itch to perform sophisticated analysis on a column of figures in a word processing document, the table feature could turn out to be just the tool to scratch it with.

Word to the rest of us. Surprisingly, not all Mac users demand WordPerfect for their word processing needs. Instead, a number of people use Microsoft Word. This crowd is rumored to be interested in the upcoming Version 6.0 of their favored tool, which will share its core code with the Windows version. According to the Knife, the products will be released serially, with the Windows version out first. Sources tell the Knife that Microsoft, which may or may not call the product Word, currently aims to announce the Windows release at this fall's Las Vegas Comdex and hopes the Mac version will be ready to roll at next January's Macworld Expo. These will be among the first OLE 2.0-compatible products to roll out of Redmond.

Less magic, more filling. Every pro-peller head on the Internet knows that there's a looming shortage of TCP/IP addresses. Imagine running out of unassigned phone numbers (also a possibility) and you get an idea of the seriousness of this problem. Some large organizations are already hoarding addresses, a practice that only hastens the inevitable.

The address shortage is the main reason General Magic originally opted to develop its own addressing scheme, thereby circumventing the current "crisis" while at the same time wringing some of the complexity out of the current TCP/IP system.

But now sources tell the Knife that the enormity of the task of creating this new, simplified addressing mechanism has forced General Magic to reluctantly back off from its ambitious plans in favor of the traditional OSI standard. At least, that's what the Knife's sources say the company is telling its curious and watchful investors. □

Even the Hollywood elite must go MacWEEK mugless unless they first make deals with the Knife at (415) 243-3544, fax (415) 243-3650, MCI (MacTheKnife), Internet (mac_the_knife@mac-week.ziff.com), AppleLink (MacWEEK) or CompuServe/ZiffNet/Mac.

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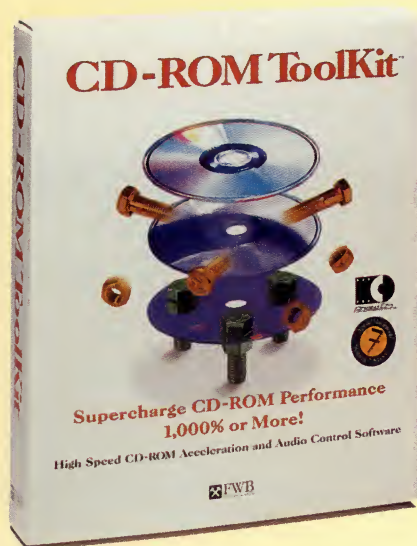
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Expense Report (Jan 30)	62.5K	19.5K	69%	Compressed Faster	B080	CVSS	Now	Thu, Feb 25, 1993
Heartbeats	45.5K	9.4K	79%	Compressed Faster	FIH3	EPGF	Now	Thu, Aug 27, 1992
Newsletter/Jan 93	100.2K	25.4K	75%	Compressed Smaller	ALD4	ALB4	Now	Fri, Sep 11, 1992
Product Descriptions.xls	254.7K	—	—	Archived	NCse	APPL	Now	Thu, Feb 25, 1993
01-98 Objectives	6.5K	—	—	Don't Compress: Item	MSWD	VOBN	Now	Mon, Feb 1, 1993
Team Photo.TIFF	235.3K	36.4K	84%	Compressed Faster	TFT	TFT	Now	Fri, Jan 15, 1993
Compressed: 5 of 7	712.9K	358.0K	50%	—	—	—	—	—

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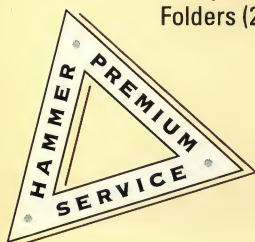
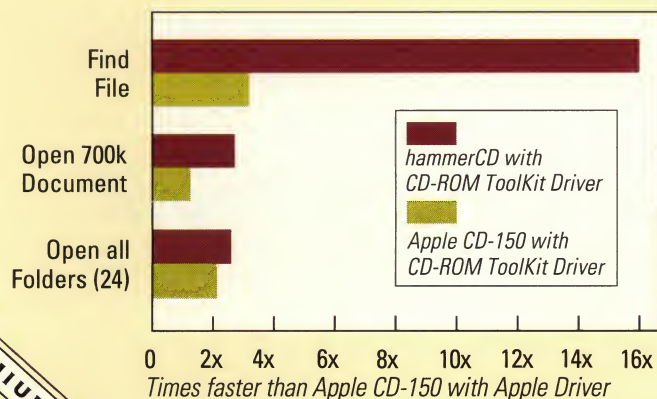
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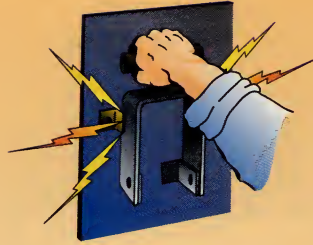


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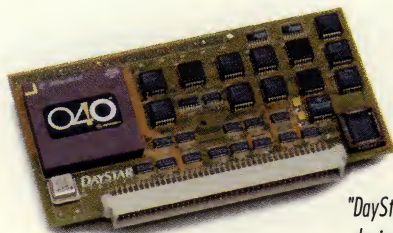
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